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PROGNOSIS OF HYPERTHYROIDISM TREATED BY ANTITHYROID DRUGS

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Hyperthyroidism can regularly be controlled by the administration of antithyroid drugs, and a euthyroid or hypothyroid state can be maintained for as long as treatment is continued. The optimal therapeutic schedules and the expected sequence of events during treatment have been determined.[1] There remains, however, considerable divergence of opinion on the incidence of prolonged remission after cessation of a course of therapy with an antithyroid compound.[2] This may in part be attributed to the many reports based on observation of patients for only a short time after the conclusion of treatment. Where this objection does not apply, the published rates of remission are nonetheless difficult to interpret, since they have been determined by giving equal weight to patients with a wide range of post-therapeutic periods of observation. This procedure introduces an obvious source of error into the data and also makes it impossible to derive the incidence of remissions at any given time after the cessation of treatment. The present study appears to surmount these obstacles. An evaluation is made of the status of patients examined four years or more after the conclusion of an adequate therapeutic course with one or more of the antithyroid drugs. All results are rendered comparable by being recorded only in terms of the course of each patient during the first four years after the cessation of treatment, although information extending over a much longer interval is available in many cases.

METHOD AND MATERIAL

The patients included in this study were seen at the Peter Bent Brigham Hospital and the New England Center Hospital. The earliest patient began therapy in July, 1942, and the most recent patients concluded their first course of treatment before July, 1948. During these years, treatment with antithyroid compounds was initiated in all patients with hyperthyroidism seen, about 400. A majority of these patients continued treatment elsewhere because of the referral type of practice at these institutions. The study was limited, therefore, to 120 patients who were observed directly by the authors during their initial course of treatment. Of these, adequate follow-up data were obtained in 101 patients (84%) of the initial series. In the majority of instances, repeated examinations were performed during the post-treatment period. In cases in which this was not possible, the patient was seen at least once by the authors four or more years after conclusion of the first course of treatment. Exceptions were made in 14 cases, in which the report by the patient or the referring physician was sufficiently complete to determine the thyroid status clearly.

Patients were included in this study if the diagnosis of hyperthyroidism was definite, if the initial course of treatment was adequate to produce a euthyroid state, and if the drug was administered for at least six months. The antithyroid drugs employed were thiouracil, 6-ethylthiouracil, 6-propylthiouracil, and thiobarbital. In many instances more than one drug was used in sequence. Widely varying doses of each agent were represented in this series; some patients received very small doses but were included if a euthyroid state was attained during treatment. In the majority of patients, the initial dose of the antithyroid compound was lowered to a maintenance level some months prior to final discontinuation of therapy.

For the most part, clinical criteria were used in assessing the status of thyroid function during therapy and at subsequent examinations. In addition, at the latter time, the accumulation of radioactive iodine by the thyroid was measured in 42 patients, and the basal metabolic rate and the serum cholesterol concentration were determined in a few instances. If any doubt existed as to the presence of a recurrence, the patient was seen repeatedly until a definite conclusion could be reached.

Dr. George W. Thorn permitted access to the records of the Peter Bent Brigham Hospital for information for this study.
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Because of space limitations, tables 1 through 7 and all of the bibliographic references have been omitted from THE JOURNAL; they will appear in the authors' reprints.

Certain definitions are pertinent to the subsequent presentation of results. A relapse was defined as a return of the signs and symptoms of hyperthyroidism within three months after cessation of treatment; any later return of the disease was termed a recurrence. The thyroid was classified as diffusely enlarged even when its surface was not perfectly smooth. Only the presence of discrete single or multiple nodules in the thyroid led to its inclusion as a nodular goiter. When hyperthyroidism recurred after subtotal thyroidectomy, nodularity of the thyroid was frequently found, but these cases were classified as "postoperative recurrences" rather than as nodular goiters. The degree of hyperthyroidism was rated as 1 +, 2 +, and 3 + on the basis of basal metabolic rates of + 10 to + 25, + 26 to + 45, and + 45 and above, respectively, and on the basis of mild, moderate, and severe clinical manifestations of hyperthyroidism.

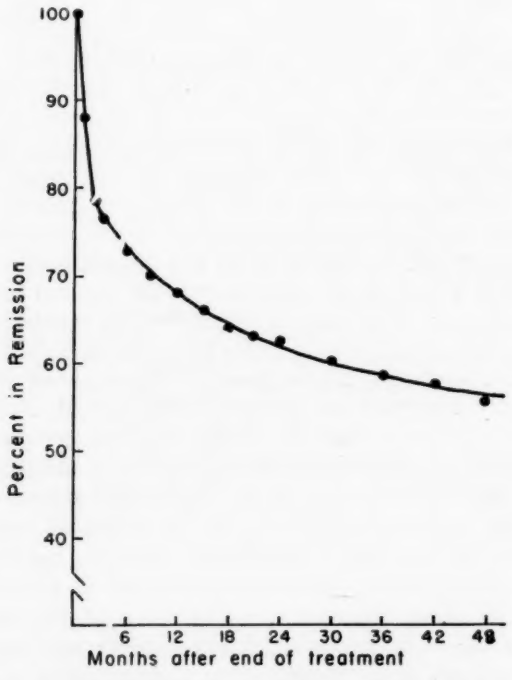

Fig. 1.—The percentage of patients in remission as a function of the interval after the cessation of the first course of antithyroid drug treatment. At all times, the percentage of remissions is based on the entire series of 101 patients. The frequency of recurrence during any interval may be derived as the decrement in the per cent of remission from the beginning to the end of the interval. The curve shown was fitted visually to the data.

RESULTS

Among the 101 patients in this study, 24 (23.7%) had a relapse within three months, 21 (20.8%) had a recurrence at a later time, and 56 (55.5%) remained well for at least four years after the conclusion of a course of treatment with one of the antithyroid drugs. In three patients who were well after four years a recurrence of hyperthyroidism subsequently developed after 49, 54, and 55 months of remission, respectively. The remaining 53 were found to be euthyroid 48 to 102 months after treatment.

A second course of treatment was administered to 33 of the 45 patients in whom hyperthyroidism redeveloped. Of these, 12 subsequently remained well, representing a remission rate of 36.4%. Of the 21 patients whose disease returned after the second course, 12 received a third course, and of these, 3 (25%) remained well. The average interval from the end of the second and third courses to the time of final evaluation was, of necessity, shorter than four years, actually 46.8 months (range, 14 to 96 months) for second courses and 41.1 months (range, 18 to 72 months) for third courses. If the patients who were well after multiple courses of antithyroid drug administration were included with the 56 patients whose disease did not recur, the total number of patients treated with antithyroid drugs alone and in remission four years after completion of the first course becomes 71, or 70.3% of the entire series. The remaining patients either have been treated by other means (continuous antithyroid drug therapy, radioactive iodine therapy, or subtotal thyroidectomy) or are still receiving their second or third courses of treatment with an antithyroid compound.

The frequency with which a return of hyperthyroidism occurred at various times after the conclusion of treatment may be derived from figure 1. The relapse rate was greatest in the first two months, but the incidence of recurrences thereafter was also appreciable. A qualitative difference between a return of the disease in the first three months and a return of it at a later time is suggested by the change in the slope of the remission-time curve at three months. No single simple mathematical function could be found that fitted the points of all sections of the curve. The data for the last 36 months were best described by a hyperbolic function; the expression of the best fit by the method of least squares was $y = 100x^{-0.15}$, in which y is the percentage of patients who were still well and x is the number of months after the cessation of treatment; this function gives a curve almost identical to that in figure 1. The remission rate predicted from this equation would be 54.2% at the end of 5 years, 48.8% at the end of 10 years, and 44% at the end of 20 years.

The time sequence of recurrences after second and third courses of treatment was similar in form to that after the first course; the percentage frequency of both early relapses and late recurrences was greater at all comparable time intervals for second and third courses than for the first course. When a patient had a relapse twice, the duration of the second temporary remission bore no relation to the duration of the first.

FACTORS INFLUENCING OUTCOME OF THERAPY

In an attempt to determine what features might influence the outcome of therapy, the patients were classified according to age, sex, age and sex, size of goiter, type of goiter, duration of disease prior to treatment, number of previous episodes of hyperthyroidism, recurrence after previous subtotal thyroidectomy, severity of hyperthyroidism and of ocular and cardiac involvement, previous iodine treatment, duration of treatment, particular antithyroid drug employed, dosage of the drug, and change in size of the thyroid during treatment (tables 1 through 6; tables showing the effect on the subsequent remission rate of previous iodine treatment and of the particular antithyroid drug employed were prepared but showed no significant differences).

The majority of these analyses revealed no effect of the various factors on the subsequent remission rate. The only exception was in the case of the change in the size of the goiter during treatment (table 6). When an initially enlarged thyroid decreased unequivocally in size while the patient was receiving an antithyroid compound, the incidence of prolonged remission was 67%, which was significantly greater than the 31% remission rate observed when the enlarged gland remained constant or increased in size ($\chi^2 = 6.53$, $P = 0.01$). Fifty-eight per cent of patients in whom the thyroid was normal in size initially and throughout treatment remained well. When the thyroid was normal in size at the end of treatment, regardless of its initial size, the frequency of prolonged remission was significantly greater than was observed when a goiter was present at this time (62% as against 39%) ($\chi^2 = 3.78$, $P = 0.05$). The only other factor that appeared to modify the ultimate remission rate was the recurrence of hyperthyroidism after a previous subtotal thyroidectomy (table 2); however, the difference between the remission rate of patients with primary hyperthyroidism and the lower rate in those with postoperative recurrences was not significant ($\chi^2 = 1.73$, $P > 0.10$), and the number of cases involved was too small to allow a reliable conclusion to be drawn. The coexistence of youth, a small diffuse goiter, and mild hyperthyroidism, a combination that has been suggested by others as favoring a high remission rate, was found in this series to have no influence on the outcome (table 7).

Residual manifestations of hyperthyroidism were evaluated in 61 patients who were treated by antithyroid drugs alone, were seen personally at the time of the four year examination, and were judged to be euthyroid. The usual symptoms and signs of hypermetabolism were absent, with the exception of continued anxiety or nervousness in 11 cases, heat intolerance in 3, and tachycardia in 3. The average weight of the patients at the time of the final evaluation was 4.6 lb. (2.1 kg.) more than at the end of treatment and 22.7 lb. (10.3 kg.) more than at the onset of treatment. At the time of the last examination, all four patients who initially showed signs of congestive heart failure were well compensated, three without treatment and one with digitalis therapy. Auricular fibrillation remained in only three of nine patients in whom the hyperthyroidism had been accompanied by this disorder; in all the others the heart had reverted to normal rhythm without the use of quinidine. Lid retraction was noted initially in 18 patients and had disappeared in all but two; however, true exophthalmos remained in 8 of 17 instances and signs of ophthalmoplegia in 8 of 14 instances. A reduction in size of the thyroid when compared with its size at the onset of treatment was found in 40 of the 48 patients in whom it was initially enlarged, and in 33 patients this regression had resulted in a return of the gland to normal size. In six instances, the gland was unchanged in size, and in two it was definitely larger than initially. In 13 patients the thyroid was enlarged neither initially nor at the last observation. In summary, the thyroid gland was normal in size initially in only 13 (21.3%) of these 61 patients, but was normal in size at the last examination in 46 (75.4%).

Studies of accumulation of radioactive iodine in the thyroid were performed in 34 patients who remained euthyroid after the cessation of treatment. In all but two, measurements fell within the normal range for this laboratory (10 to 50% in 24 hours). This incidence of high uptakes was slightly but not significantly greater than that in a group of 112 euthyroid, nongoitrous patients studied during the same period, in only one of whom more than 50% of the administered radioactive iodine accumulated in the thyroid. On the other hand, the radioactive iodine uptake was above 55% in all eight patients studied during a clinically obvious recurrence of hyperthyroidism.

One patient died of an acute myocardial infarction at the age of 70, having been in remission for eight and one-half years after the conclusion of thiouracil therapy for moderately severe hyperthyroidism. At autopsy the thyroid weighed 35 gm., somewhat more than the average for this region and age group. Histologically, the increased weight was largely accounted for by an increase in fibrous tissue. There was essentially no residual evidence of hyperplasia (fig. 2). The microscopic appearance was similar to that described by Reinhoff [3] and interpreted by him as involution and hyperinvolution occurring in a previously hyperplastic gland.

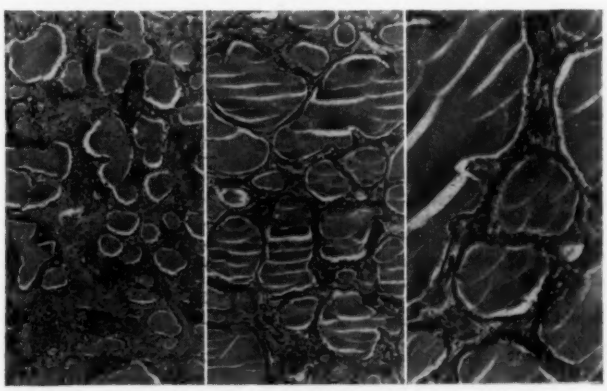

Fig. 2.—The appearance of the thyroid gland of a 70-year-old patient eight and one-half years after remission of hyperthyroidism was attained by antithyroid drug treatment. The sections at the left and center of the figure are low power (× 39.4) magnifications of sections of the thyroid gland obtained at postmortem examination; that on the right is a higher power (× 79) view. Note the increased fibrous tissue and hypercellularity of the interfollicular spaces; considerable variation in the size and shape of the follicles; normal height of the follicular cells; and absence of evidence of hyperplasia.

COMMENT

The remission rate of 55% resulting from a single course of antithyroid drug treatment coincides closely with the average remission rate of 54% obtained by pooling the results of previous studies that included 20 or more cases and that employed an observation period of more than one year after treatment.[4] When the remission figures for groups of cases followed for less than one year are combined, the average is higher, being 64%.[5] It appears that the decline in remission rate with increasing duration of observation is responsible for a considerable portion of the variation noted in the literature. This decline in remission rate is documented in the charts of Iversen's report,[4f] in figure 1 of this paper, and by a comparison of earlier with later reports from the same clinic (of Barr and Shorr [5b] with Barr [4a]; of

Meulengracht and Kjerulf-Jensen [5h] with Iversen [4f]; and of Williams [5m] with Williams [4i]).

It has been stated repeatedly, on the basis of less definitive data than are now available, that an overwhelming majority of recrudescences of hyperthyroidism occur within six months of the end of treatment. Of 313 instances of recrudescence assembled from the reports of 13 clinics, 268 (85.6%) occurred within six months.[6] It is now clear, however, that only when a long and uniform follow-up period is employed can valid figures on this point be stated. The present study shows that only 49% of the recrudescences occur within 2 months, 60% within 6 months, and 80% within 18 months.

Remission rates reported in the literature actually vary from zero [7] to 94%,[8] and not all variability is explainable by differences in the duration of observation after cessation of treatment. In certain instances, high rates of remission were observed when patients were carefully selected for antithyroid drug treatment on the basis of certain criteria that were felt to increase the likelihood of a favorable outcome.[9] Two clinics have provided extremely high remission figures, 77% and 94%, in unselected cases studied for relatively long periods.[10] In one study iodine was used in conjunction with propylthiouracil, and in the other methylthiouracil was the drug employed. From the experience of others using the same methods,[11] it is difficult to attribute the high remission figures to these factors alone, and the essential element of difference between these high remission rates and the lower rates of other studies remains unclear. Finally, a few reports have described extremely low rates of remission.[12] Again, no full explanation is available for these observations, but it is of interest that in each such series the number of patients completing treatment was less than 30. These results may simply reflect the random variation to be expected when many small groups of patients are separately reported, but other factors, such as short duration of therapy, minimal dosage, or lack of cooperation on the part of patients preferring other forms of treatment, may have been operative in some of these studies.

The biphasic nature of the curve shown in figure 1 gives theoretical justification for the assumption by Iversen [4f] that immediate relapses may be separated from later recurrences as somewhat different phenomena. From the practical viewpoint, however, both groups must be considered as therapeutic failures in evaluating the results of a single course of treatment. Furthermore, we found no difference in the remission rate after a second course of treatment between those patients who had relapses within three months after the first course and those who had recurrences after longer intervals. Thus, although one group most likely represents persistence of the underlying hyperthyroidism and the other a wholly new episode, the subsequent behavior of the two groups is similar. The very gradual slope of descent of the second phase of the curve in figure 1 indicates that the remission rate that was obtained at the end of four years in this study is a reasonably definitive one for the clinic, region, and methods employed. It would not be expected to decline below 40%, at any rate, not within the life expectancy of the majority of the patients studied.

It is evident that the efficiency of second and third courses of an antithyroid drug is lower in terms of remission rate than that of the initial course; however, the total number of patients who subsequently experience a long term remission is appreciably raised by such added courses.

Factors that predispose to prolonged remissions have been sought by several authors. As may be seen in table 8, differences of opinion are great enough with regard to most of the clinical characteristics to make them of doubtful value in predicting the result of treatment. The initial size and type of goiter, the change in goiter size during treatment, and recurrence after previous subtotal thyroidectomy were the factors found to affect the eventual outcome by more than half the investigators report-

TABLE 8.—*Effect of Various Factors on the Incidence of Long-Term Remissions After Treatment with an Antithyroid Drug*

Factor *	Barfred [5a]	Bartels [5c]	Beierwaltes and Sturgis [2a]	Frisk [5e]	Iversen [4f]	Maddox [5g]	McCullagh and others [2b]	Reveno [5j]	Rose and McConnell [5k] and Rose and Shorey [9c]	Williams [5m]	Wing and Asper [1e]	Present Study
Female	—	+	**0**	..	0	..	**0**	..	+	+	**0**	**0**
Youth	+	**0**	+	..	0	+	**0**	..	—	**0**	..	**0**
Small goiter	+	+	**0**	—	..	..	+	..	+	+	+	**0**
Diffuse type of goiter	+	..	+	+	+	**0**	+	**0**	+	**0**	**0**	**0**
Recurrent hyperthyroidism	..	—	..	—	..	**0**	—	**0**	—	..	**0**	—
Disease short in duration	+	**0**	..	..	..	..	..	..	0	**0**	..	**0**
Disease mild in degree	**0**	+	**0**	..	0	+	**0**	..	+	+	+	**0**
Previous iodine treatment	..	..	..	—	0	..	..	..	0	..	..	**0**
Presence of cardiac complications	**0**	..	..	..	..	..	..	..	0	..	..	**0**
Presence of severe eye signs	..	..	..	..	..	..	..	..	+	**0**	..	**0**
Course of treatment longer than 1 year	..	**0**	**0**	..	..	..	**0**	..	0	+	+	**0**
Rapid response to treatment	..	..	..	..	..	..	**0**	..	0	**0**	..	..
Decrease in thyroid size during treatment	..	..	..	..	..	..	..	..	..	+	..	+
No. of patients	28	21	44	50	162	21	123	35	29	100	66	101
% of patients having remissions	57	38	77	80	57	81	57	94	55	49	42	55
Data available for chi-square analysis	Yes	Yes	Yes	Yes	No	In part	Yes	Yes	In part	Yes	Yes	Yes

* + = improves prognosis for prolonged remission; 0 = has no effect on prognosis for prolonged remission; — = worsens prognosis for prolonged remission. Bold-faced marks indicate effects that are significant, according to chi-square analysis, at the 5% probability level; marks in light-faced type indicate effects pointed out by the authors but not significant by chi-square analysis, or, in the case of columns 5 and 6, effects for which data are not given in sufficient detail for chi-square analysis.

ing pertinent data. In the case of initial goiter size, six authors observed a high remission rate when the thyroid was small, two noted no effect, and one reported that absence of a goiter was an unfavorable prognostic sign. It is of interest that in the current study, initial goiter size was found to have no effect on the remission rate, but a decrease in goiter size during treatment and a normal-sized gland at the end of treatment were important factors in favor of prolonged remission. The only similar observations in the literature are those of Williams,[5m] who also noted that a decrease in size of the thyroid was a strongly favorable prognostic sign. With regard to the type of goiter, six groups of observers indicated that the absence of nodularity favored a prolonged remission, while five found no difference in rates of remission between patients with diffuse and those with nodular goiters. In summarizing the data on both size and type of goiter, it was not possible to pool the figures from the various clinics because of great differences in the definitions employed for size and nodularity. In the case of the comparison of primary and recurrent hyperthyroidism, the data from eight clinics [13] could justifiably be combined to yield a total of 362 primary cases and 80 recurrent cases. When these figures were analyzed, the incidence of remission was significantly greater for patients with primary hyperthyroidism than for those with postoperative recurrences (60% as against 38%) ($\chi^2 = 13.95$, $P < 0.01$).

It should be emphasized that relatively little of the information available when the diagnosis of hyperthyroidism is made is of value in predicting which patients will have the greatest chance of a prolonged remission after antithyroid drug treatment. Primary hyperthyroidism and a small diffuse goiter are probably favorable indications, although the data of the present study do not confirm that these factors have an effect. The existing information does help to guide the conduct of therapy once it has been initiated. It seems definite that treatment should be continued for at least six months, since previous work has shown that the rate of remission is thereby significantly greater than that observed after shorter courses of treatment.[14] It is also definite that a decrease in the size of the thyroid during treatment strongly favors a prolonged remission, and it seems reasonable, therefore, to terminate therapy after six months or more if such a decrease has been noted. When no change in the size of the goiter occurs during a single 6 to 12 month course of treatment, it would be of interest to determine whether a further extension of therapy would result in regression of the enlarged gland and whether this would also signal the beginning of remission. It is, of course, well known that thyroid enlargement regularly follows the induction of hypothyroidism by excessive dosage, and if changes in the size of the thyroid are to be used to guide the duration of therapy, hypothyroidism would have to be avoided.

The importance of several other variants of the therapeutic program is still unknown, because the pertinent investigations have not yet been completed. Included among these are the recommendations that treatment be extended beyond one year in duration,[1c] that iodine be administered concurrently [4d] and continued after withdrawal of the antithyroid drug,[15] that treatment be directed toward producing hypothyroidism, that thyroid extract be used concurrently,[8] and that psychotherapy be offered during antithyroid drug therapy.[16]

With regard to the fate of the thyroid after antithyroid drug treatment, Bartels [5c] has stated that this form of therapy leaves the patient with a thyroid gland that is still hyperplastic. He accordingly predicted that "if the . . . patients now in remission are observed sufficiently long, all can be expected to have a relapse." This prediction is not borne out by the data of the present study. Furthermore, the concept that the thyroid gland remains hyperplastic after treatment with antithyroid compounds appears to require revision. Frisk [5e] pointed out that the presence of hyperplasia was the rule when the thyroid was examined histologically after brief treatment, but that an involutional gland was found in one case after 14½ months of treatment. Poate [8] has made similar observations. Figure 2 of the current study shows an absence of hyperplasia in a thyroid obtained after eight and one-half years of remission. Moreover, among those patients in the current series who remained euthyroid, the size of the thyroid on palpation gradually decreased as remission proceeded, reaching normal size by the time of the four year examination in 75% of patients, whereas initially it had been of normal size in only 21%. Four other reports [17] have described a similar change in goiter size. Finally, the prevalence of normal values for radioactive iodine uptake in the group in remission does not suggest that residual hyperplasia is a frequent finding among such patients. The susceptibility to recurrence so characteristic of hyperthyroidism is not, therefore, readily explained by thyroid hyperplasia remaining from the previous episode. It seems more likely that the recurrence is associated with a new bout of hyperplasia, the cause of which is presumably the same as that of the initial episode and unknown at present.

SUMMARY

Among 101 hyperthyroid patients observed for four years after conclusion of a course of antithyroid drug therapy, 23.7% had a relapse within 3 months, 20.8% had recurrences from 3 to 48 months later, and 55.5% remained euthyroid. Second and third courses of treatment yielded lower remission rates than the first but increased the total number of persons with prolonged remission to 70.3% of the total series. The frequency of recurrences decreased gradually as the duration of remission increased.

Of the many clinical characteristics analyzed in this study for their effect on the probability of a prolonged remission, only a decrease in goiter size during treatment was found to improve the ultimate result significantly. Analysis of the data from other clinics led to the conclusion that primary hyperthyroidism and a small diffuse goiter also favor the occurrence of a prolonged remission. The thyroid was normal in size four years after the conclusion of treatment in 75.5% of patients in remission at that time. Evidence has accumulated that suggests that hyperplasia of the thyroid disappears when a prolonged remission of hyperthyroidism has been induced by treatment with an antithyroid drug.

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FATAL FUNGUS INFECTIONS COMPLICATING ANTIBIOTIC THERAPY

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For many years Candida albicans has been known to cause local infection in the mouth, skin, nails, and vagina. In the past such lesions have shown little tendency to spread and have rarely been fatal.[1] Recently, however, there has been a noticeable increase in the frequency with which fungi, particularly C. albicans, have produced generalized and fatal infections. The importance of this change has not been universally accepted,[2] although many clinical and laboratory reports have appeared warning of the increased virulence of C. albicans during antibiotic therapy.[3] We wish to emphasize this warning by reporting three additional cases of fatal fungus infection.

REPORT OF CASES

CASE 1.—A 47-year-old dentist was first admitted to the Albany Hospital on Sept. 30, 1950. For about a year, the patient had suffered from abscessed teeth. Three weeks before admission, he had contracted a respiratory infection characterized by fever, cough, brownish sputum, and wheezing. He improved after a course of penicillin and aureomycin, but anal pruritis, pallor, and marked weakness developed. Physical examination revealed a well-nourished, middle-aged man who showed marked pallor and a few petechiae on the abdomen. The spleen was palpable. The lungs were clear. Laboratory studies were as follows: red blood cell count 2,740,000 per cubic millimeter; hematocrit 28%; hemoglobin 8 gm. per 100 cc. (Sahli); white blood cell count 1,400 per cubic millimeter with 80% lymphocytes and 20% segmented neutrophils. The platelet count was 84,000 per cubic millimeter. Aspirations of bone marrow from the sternum, iliac crest, and spinous process showed marked hypoplasia. No abnormalities were found in the urine nor in x-ray studies of the chest, gastrointestinal tract, or pelvis. The values of nonprotein nitrogen, fasting blood sugar, and serum protein were also normal.

After a diagnosis of aplastic anemia was made, the patient received one transfusion of fresh blood and one of blood from a blood bank. He was discharged 13 days after admission. His course was uneventful until 10 weeks later, when he became jaundiced. At that time pain in the lower left chest anteriorly and a temperature of 101 F developed. Twelve weeks after discharge, he was readmitted with diagnoses of homologous serum jaundice and early pneumonia. He was treated with a high protein, high carbohydrate diet, vitamins, transfusions, penicillin, and oxytetracycline (Terramycin). For the first four days he received procaine penicillin, 400,000 units daily. He received oxytetracycline, 500 mg. every four hours from the 4th to the 7th days and 500 mg. every six hours from the 8th to the 12th days; then these antibiotics were discontinued. Fungus infection of the oral mucous membranes was first noted on the fourth hospital day. The organism obtained from the culture of these lesions was identified as C. albicans. Gentian violet was applied locally. The patient showed transient improvement for the first few days in the hospital but then became gradually worse with increasing pulmonary congestion, a rising respiratory rate, and finally cyanosis. He died on the 25th hospital day. His course was febrile from the time of his second admission.

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Because of lack of space, the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

In addition to an aplastic bone marrow and acute hepatitis, postmortem examination showed extensive hemorrhagic bronchopneumonia and ulcerative esophagitis. Both the lung and the esophageal ulcers showed large numbers of yeast-like organisms. The immediate cause of death was thought to be extensive pneumonitis, although it was felt that severe hepatitis and aplastic anemia were contributory.

CASE 2.—A 50-year-old dentist was admitted to the Columbia Memorial Hospital on Sept. 23, 1951, with a chief complaint of chills and fever. For several months prior to admission, the patient had cough productive of little or no sputum. About 10 days before admission, an upper respiratory tract infection with increased cough developed. On the sixth day before admission, he complained of pain in the right upper and lower abdomen, which was exaggerated by deep breathing. Subsequently, he had several chills with a temperature of 101 to 104 F daily. During this 10 day period, he received oxytetracycline for the first four days followed by chloramphenicol (Chloromycetin) for three days. He then was given aureomycin for one day and finally penicillin for two days. Physical examination showed an alert patient who did not appear critically ill. There was dulness at the right lung base with decreased breath sounds, bronchophony, and a few fine rales. The right side of the abdomen was slightly tender. The urine showed a trace of albumin, one white and one red blood cell per high power field, and yeast cells. The white blood cell count was 12,800 with 67% segmented neutrophils, 21% lymphocytes, 10% eosinophils, and 2% monocytes. Neisseria catarrhalis, Streptococcus viridans, and yeast were cultured from the sputum. One specimen revealed acid-fast bacilli, which proved to be Mycobacterium tuberculosis by guinea pig inoculation. The spinal fluid was normal except for a slightly positive Pandy test. A chest film showed infiltration in the right middle and lower lung fields. An intravenous pyelogram revealed a questionable defect in the right kidney shadow. On the eighth hospital day, the urine again showed yeast cells, and the white blood cell count was 36,000 with 94% neutrophils. Three blood cultures obtained on the 1st, 6th, and 8th hospital days were sterile; C. albicans was grown from blood cultures taken on the 10th, 12th, and 13th days following admission. The yeast cells in the urine and sputum were later identified as C. albicans. On admission the patient was given chloramphenicol, 250 mg. every six hours, penicillin, 100,000 units every three hours, and aureomycin, 1.0 gm. every six hours. Chloramphenicol was discontinued on the first, penicillin on the second, and aureomycin on the fourth hospital days. On the sixth day, 1 gm. of sulfisoxazole (Gantrisin), 0.5 gm. of sulfadiazine, and 0.5 gm. of sulfamerazine were given every four hours. The sulfonamides were discontinued on the seventh day. The patient received saturated solution of potassium iodide, 60 drops, on the ninth hospital day. On the following day he received 60 drops of sodium iodide. The clinical course was gradually downhill with progressive consolidation of the left lung. Terminally, the sputum became blood-tinged and petechiae appeared on the skin. The patient died on the 10th hospital day.

Postmortem examination revealed a right perinephric abscess adjacent to a perforation of the duodenum in which a toothpick was found. There was thrombosis of the inferior vena cava and multiple pulmonary emboli. Microscopic sections showed yeast cells in the thrombus and throughout both lungs. C. albicans was cultured from the perinephric abscess.

CASE 3.—A 66-year-old housewife was admitted to the Albany Hospital on March 31, 1952, because of high fever and coma of 24 hours' duration. The patient had suffered from indolent ulcers of the lower legs for 30 years. One year, and again

two months before admission, phlebitis developed and was treated with penicillin. In the two months before admission, she had several episodes of chills with fever up to 104 F. Penicillin was administered, with subsequent drop in fever on each occasion. Early on the day before admission, she complained of marked weakness. During that afternoon she became comatose. The physical examination on admission revealed a temperature of 105.2 F. The pulse rate was 128 and respirations, 60. The blood pressure was 160 mm. of mercury systolic and 72 diastolic. The patient was an extremely obese elderly woman who responded only to painful stimuli. The neck was supple, and the pupils reacted to light. The heart rhythm was irregular, and there were rales over the left lower lung field posteriorly. The lower legs showed brawny induration, many healed scars, and slight edema. There was cyanosis of the nail beds.

Laboratory studies on admission showed that the urine contained 2+ albumin, a few hyaline and granular casts, and clumps of white blood cells. The white blood cell count was 16,000 per cubic millimeter with 83% neutrophils. The fasting blood sugar was 119 mg. per 100 cc., the nonprotein nitrogen was 58 mg. per 100 cc., and the carbon dioxide combining power was 16 mEq. per liter. A traumatic lumbar puncture showed normal pressure. The spinal fluid sugar and chloride levels were normal, but the protein level was 113 mg. per 100 cc. and the red blood cell count 72,000 per cubic millimeter. A portable chest film revealed an enlarged heart and marked

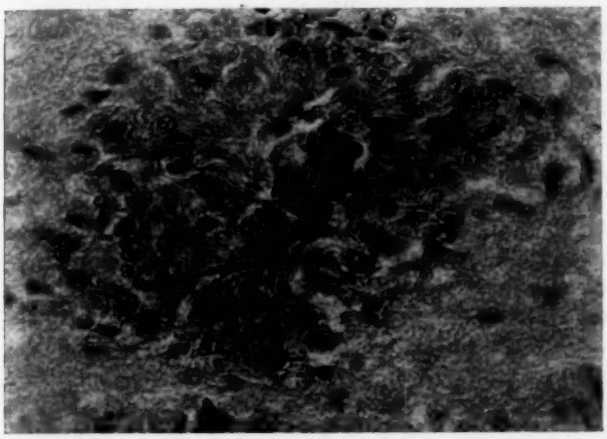

Fig. 1.—Brain abscess from the patient in case 3 showing yeast-like organisms and marked tissue reaction (Schiff stain).

pulmonary congestion bilaterally, but there was no evidence of pneumonia. The patient underwent digitalization, hydration, and administration of sulfadiazine, penicillin, and streptomycin. She improved rapidly and on the fourth hospital day was alert and afebrile. When the dose of antibiotics was reduced, however, fever returned accompanied by diffuse abdominal tenderness and a bullous dermatitis over the left leg. On the 12th hospital day, aureomycin was given intravenously and chloramphenicol orally, but chloramphenicol was cancelled the following day. Penicillin was discontinued on the 14th day. The temperature fell again, but on the 19th day ulcerations were noted in the mouth. The patient became jaundiced and had right upper quadrant tenderness. Oxytetracycline was substituted for aureomycin, and gentian violet was applied to the mouth lesions. Oxytetracycline was discontinued on the 22d day because of increased severity of the ulcerations in her mouth. Jaundice deepened, and the patient became comatose and died on the 27th hospital day. A blood culture and spinal fluid culture taken on the fifth day were negative, and a throat culture showed N. catarrhalis and Escherichia coli. Two urine cultures grew Proteus and Pyocyaneus organisms. A blood culture obtained on the 23d day grew yeast, identified only as a possible member of the genus Candida.

Postmortem examination revealed multiple abscesses of the brain, myocardium, and kidneys in which yeast-like organisms were found in large numbers (fig. 1, 2, and 3). In addition, chronic cholecystitis, cholelithiasis, and fatty changes in the liver were present.

COMMENT

In each of these cases, as well as in most of those reported in the literature,[4] more than one antibiotic was used. It is therefore difficult to draw valid conclusions as to whether one more than another predisposes to fungus infection; however, because the incidence of this disease increased after the introduction of the broad

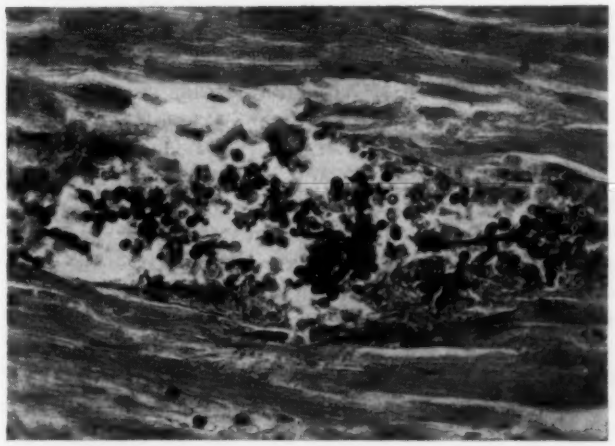

Fig. 2.—Myocardial abscess from the patient in case 3 showing yeast-like organisms and marked necrosis (Schiff stain).

spectrum antibiotics, it is likely that one or more of them is responsible. Indeed, the A. M. A. Council on Pharmacy and Chemistry [5] has recommended that a statement warning of the danger of moniliasis be added to the labels of aureomycin, chloramphenicol, and oxytetracycline.

SUMMARY

Presented are three cases of fatal fungus infections associated with antibiotic therapy. The evidence from these and other cases suggests that patients who are receiving broad spectrum antibiotics should be carefully observed for evidence of fungus invasion.

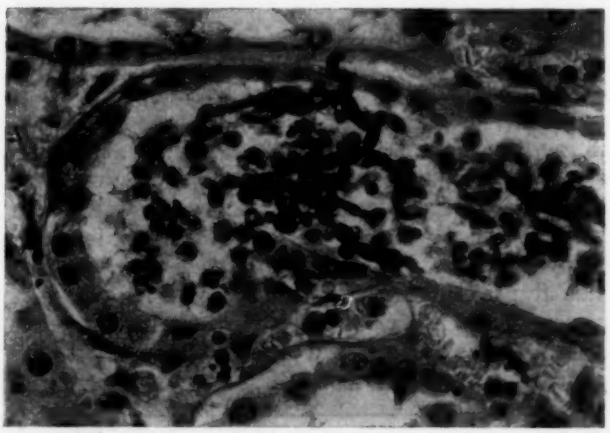

Fig. 3.—Abscess in a renal tubule from the patient in case 3 showing yeast-like organisms (Schiff stain).

ADDENDUM

While this paper was in press, two additional patients who received intense broad spectrum antibiotic therapy have been studied. At autopsy both had monilial abscesses in the myocardium, kidneys, and lungs. Blood cultures grew Candida albicans in one and C. tropicalis in the other.

INTRA-ARTERIAL AND INTRAVENOUS BLOOD INFUSION IN HEMORRHAGIC SHOCK

COMPARISON OF EFFECTS ON CORONARY BLOOD FLOW AND ARTERIAL PRESSURE

Robert B. Case, M.D., Stanley J. Sarnoff, M.D., Philip E. Waithe
and
L. Charlotte Sarnoff, Boston

The use of intra-arterial blood transfusion has, in recent years, acquired an increasing vogue in the therapy of oligemic shock. The literature has been comprehensively reviewed by Seeley and Nelson.[1] Those favoring the use of this procedure feel that the intra-arterial route more quickly and effectively elevates tissue perfusion rates, especially coronary artery flow. An insufficient coronary flow had not previously been demonstrated in oligemic shock. Further, no data are known to the authors in which a comparison of the effect on coronary flow has been made when using both the intra-arterial and intravenous routes for infusion. The patent desirability of having such information stimulated the collection of the data presented below.

It was realized at the outset of these investigations that the extent to which we would be able to draw sound conclusions would depend on how rigidly conditions were controlled when the effects of arterial and venous infusions were compared. This need has been pointed out by Wiener [2] and has dominated the conduct of each experiment.

METHOD

Mongrel dogs weighing between 14.8 and 18.6 kg. were anesthetized with 4 mg. per kilogram of morphine sulfate intramuscularly followed in 30 minutes by 480 mg. per kilogram of urethane and 48 mg. per kilogram of alpha chloralose. This combination has been found to give apparently steady levels of anesthesia for up to 12 hours. Only rarely was additional anesthetic required, and this was never administered between infusions, the effects of which were to be compared. With the dog in the right oblique position, the chest was opened under intermittent positive pressure breathing and the third and fourth ribs on the left side were resected. Pressures were measured in or near the right auricle through a cardiac catheter passed up the right femoral vein, in the pulmonary artery and left auricle by the direct insertion of vinylite catheters, and in the left femoral artery by a side arm from a cannula placed therein. All pressures were measured by electrically recording manometers (Electromanometers),[3] and recorded on electronic equipment for making several simultaneous recordings (Poly-viso). A wide-mouthed cannula in the right femoral artery conducted blood through a recording rotameter [4] to a Gregg coronary cannula.

After opening of the pericardium, the left main coronary artery was dissected free, and a ligature was placed loosely around it. The Gregg cannula was introduced into the stem of the left main coronary artery via the left subclavian artery and aorta. The ligature was then tied firmly around the tip of the cannula so that the left main coronary artery received only the blood that passed through the recording rotameter. The volume of the external system was compensated for by giving the dog the same amount of dextran intravenously while the external system was being filled with blood. Administration of 35 mg. per kilogram of Treburon (sodium salt of sulfated polygalacturonic acid methyl ester methyl glycoside) intravenously and 125 mg. every 45 to 60 minutes thereafter rendered the blood incoagulable.

Hemorrhagic shock was induced by allowing the animal to bleed into a reservoir at a fixed height above the dog via the left femoral arterial cannula. The reservoir was kept warm by means of an external heating pad and was frequently agitated.

After the desired degree of hypotension and depression of coronary flow was achieved for a given period of time, a known amount was reinfused by syringe into the left femoral artery in a known period of time, at a rate of about 1.7 cc. per second. The dog remained at his recovery levels for a prescribed period of time and was then bled until the previous level of hypotension was achieved and held in that state for the same period of time used in the first hypotensive period. Reinfusion of the same amount, in the same period of time, was then performed intravenously. This sequence of arterial and venous infusions was then repeated. Occasionally the blood was administered first intravenously and then intra-arterially. In different experiments, the period and severity of hemorrhagic hypotension was varied in an attempt to straddle the shock range from moderate brief hypotension to the point of imminent death.

The details of the manner in which each type of experiment was conducted will be described below.

RESULTS

Results of Intra-Arterial and Intravenous Infusion After Brief Periods of Hemorrhagic Hypotension.—The left-hand side of figure 1 shows data obtained from four periods of hypotension and four infusions given alternately intra-arterially and intravenously. The bar at the top shows the period during which the bleeding reservoir connected to the left femoral artery was open in each instance. Note that the levels of coronary flow and

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Owing to lack of space, the bibliographic references have been omitted and will appear only in the authors' reprints.

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Donald E. Gregg, M.D., assisted in formulating the technique for measuring the coronary flow and reviewed the data.

The Treburon (sodium salt of sulfated polygalacturonic acid methyl ester methyl glycoside) was supplied by Elmer L. Sevringhaus, M.D. of Hoffmann-LaRoche, Inc., Nutley, N. J.

arterial and auricular pressures at which hemorrhage was begun were comparable in each instance, as were the levels that were obtained by the bleeding. Note further that the duration of the periods of hypotension were also comparable. At the first A, 270 cc. of blood were infused intra-arterially in 2 minutes and 43 seconds. At the first V 240 cc. of blood and 30 cc. of dextran were infused intravenously in 2 minutes and 44 seconds. At the second A 245 cc. of blood and 25 cc. of dextran were infused intra-arterially in 2 minutes and 55 seconds. At the second V 270 cc. of blood were infused intravenously in 2 minutes and 45 seconds. Coronary flow and arterial pressure responded as rapidly and to the same extent with both routes of infusion. Further, right and left auricle pressures and pulmonary artery pressures behaved similarly after arterial and venous infusion.

Results After a Longer Period of Hemorrhagic Hypotension.—On the right-hand side of figure 1 may be seen a comparison of the results were obtained after a longer period of hypotension and myocardial deterioration as evidenced by the rising left auricle pressure. At the first V′ of this group, 170 cc. of blood and 30 cc. of dextran were infused intravenously in 1 minute and 49 seconds. At the first A′, 200 cc. of blood were infused intra-arterially in 2 minutes and 6 seconds. At the second V′, 195 cc. of blood and 5 cc. of dextran were infused intravenously in 1 minute and 53 seconds. At the second A′, 180 cc. of blood and 20 cc. of dextran were infused intra-arterially in 2 minutes and 6 seconds. No difference was noted in the rapidity or extent of recovery of either coronary flow or arterial pressure.

Failure of Intra-Arterial Infusion in Restoring the Circulation of a Dog in Hemorrhagic Shock.—In this experiment (fig. 2) after the production of hemorrhagic hypotension to a level of 35 mm. Hg for 50 minutes by bleeding into a reservoir, at 4:25 p. m. the circulatory status of the dog suddenly worsened, pulsus alternans appeared, arterial systole became slow and feeble,

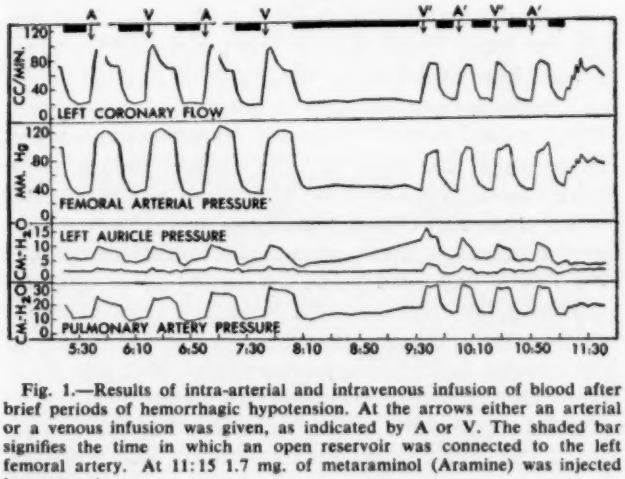

Fig. 1.—Results of intra-arterial and intravenous infusion of blood after brief periods of hemorrhagic hypotension. At the arrows either an arterial or a venous infusion was given, as indicated by A or V. The shaded bar signifies the time in which an open reservoir was connected to the left femoral artery. At 11:15 1.7 mg. of metaraminol (Aramine) was injected intravenously.

the beat was irregular, arterial pressure declined rapidly, coronary flow likewise decreased and both auricular pressures were rising rapidly. This state of affairs is, in our experience, consistently followed by ventricular fibrillation or arrest if some prompt and effective intervention is not made. At this time (between the first two vertical lines at 1A in figure 2), all the blood in the reservoir, 250 cc., plus 100 cc. of dextran, was infused intra-arterially in 3 minutes and 56 seconds. No improvement occurred. The only significant change that occurred was a further striking elevation of auricular

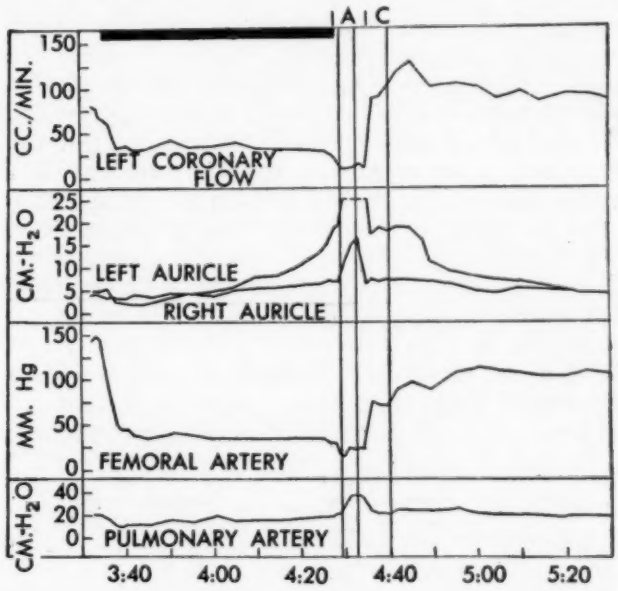

Fig. 2.—Failure of intra-arterial infusion in restoring the circulation of a dog in hemorrhagic shock, and the subsequent success of coronary perfusion. Between the two vertical lines (period 1A) all of the lost blood plus 100 cc. of dextran was replaced. Direct perfusion of the coronary artery was performed in the period between the second and third vertical lines (period 1C). The arterial reservoir was open during the time signified by the shaded bar (see text).

pressures, especially the left. At the end of the intra-arterial infusion, a brief period of left main coronary artery perfusion was instituted without further increasing the dog's blood volume (between second and third vertical lines, period 1C in figure 2). This was accomplished by rapidly withdrawing about 50 cc. from the femoral artery and injecting it into the cannula supplying the left main coronary artery. After the second such coronary perfusion, significant improvement was evidenced by a stronger, more regular beat and a rising arterial pressure. At the end of this 5 minute 45 second period during which 455 cc. was delivered to the left main coronary artery, the dog was apparently restored. This was evidenced by the reestablished arterial pressure, which was then capable of maintaining an adequate coronary flow. Shortly thereafter, auricular pressures fell to normal levels as the myocardium, then adequately supplied with blood, regained its contractility. This improvement was well maintained for the subsequent hour, after which time the dog was again bled into shock for further experimentation. There appears to be little doubt that the salient circulatory defect at the point of imminent death was an insufficient left coronary artery flow. Unfortunately, however, rapid, massive intra-arterial blood infusion apparently was incapable of correcting this insufficiency, whereas a brief period of artificially increased left coronary flow restored the dog without a further increase in blood volume.

Arterial and Venous Infusions Given at Equivalent Elevations of Left Auricle Pressure.—As demonstrated by Kohlstaedt and Page,[5] cardiac dilatation is a significant index of the onset of the terminal phase of shock. In other studies to be reported from this laboratory,[6] it was shown that rising left auricle pressure accompanied by grossly observable cardiac dilatation signals imminent ventricular fibrillation or arrest unless corrected by coronary perfusion. Figure 3 shows the results of arterial and venous infusions initiated at comparable levels of rising left auricle pressure. At the first V, after the left auricle pressure had risen to 15.7 cm. H_2O, 350 cc. of blood were given intravenously in 1 minute and 44 seconds. The infusion did not appear to affect the decline of coronary flow and arterial pressure. The coronary perfusion pump was started (shaded bar at top in fig. 3), and this was followed by a decline of left auricle pressure to control levels. The pump was turned off at 7:36 p. m. and the dog re-bled. At A, 7:46 p. m., when the left auricle pressure had again risen to 15.7 cm. H_2O, 250 cc. of blood plus 100 cc. of dextran were administered intra-arterially in 1 minute

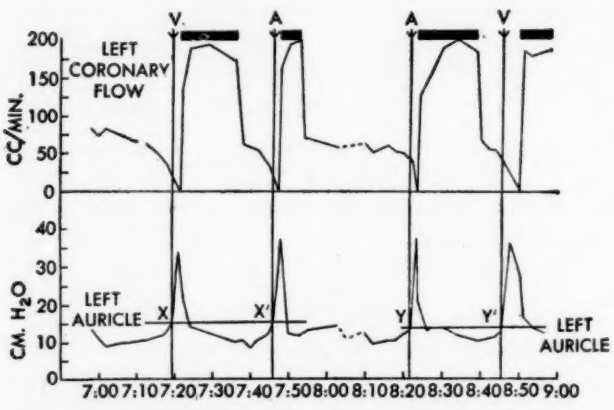

Fig. 3.—Results of arterial and venous infusions initiated at comparable levels of rising left auricle pressure. The shaded bar indicates the periods of direct coronary perfusion (see text).

and 24 seconds. This infusion was also followed by decline of coronary flow to zero, necessitating the use of the coronary perfusion pump. This type of comparison was repeated at a left auricle pressure of 14 cm. H_2O, again with no evident difference attributable to the route of infusion (see the right side of fig. 3).

Summary of Response of Coronary Flow and Arterial Pressure with Arterial and Venous Infusion.—In addition to the data shown in figures 2 and 3, 20 infusions of blood or blood and dextran were administered to four dogs; 10 of these were administered intra-arterially and 10 intravenously. The average infusion volume was 240 cc. in both groups. The arterial infusions were given at an average rate of 1.66 cc. per second and the venous infusions at 1.69 cc. per second. The arterial infusions were 78% blood and the rest dextran, while the venous infusions were 80% blood and the rest dextran. The arterial infusions produced a rise of 66.5 cc. per minute in left main coronary flow and the venous infusions produced a rise of 65.7 cc. per minute. The average rise in arterial pressure was 61.5 mm. Hg with the arterial infusions and 56.1 mm. Hg with the venous infusions.

COMMENT

The data presented above do not constitute a contraindication to the clinical use of intra-arterial blood transfusion in oligemic shock. These experiments have been conducted in anesthetized, open-chested dogs under positive pressure breathing whereas clinical shock is encountered oftenest in unanesthetized man breathing spontaneously. In addition, whenever an approximation of a clinical syndrome is attempted in the physiological laboratory, it must be interpreted as being just that, an approximation. It may confidently be assumed that there are in operation variables that escape the attention of the most determined investigator.

Nevertheless, it appeared that more ample and convincing evidence should be available to substantiate the alleged advantages of intra-arterial transfusion if it is to become as widespread a practice as seems to be the case. That it is not without hazard is evidenced by several recent reports of limb amputation or tissue necrosis following its use.[7] Arterial spasm is not uncommon. The cannulation of a radial artery in the absence of an adequate palmar arch is especially hazardous. The procedure is appreciably more complicated than the use of the intravenous route. Consequently it may entail a delay in the initiation of a transfusion that would outweigh whatever advantages it is thought to possess.

The advocates of intra-arterial transfusion list among its theoretical advantages the possibility that, in the patient in circulatory collapse, it may not be possible to enter a vein, or at least, be very difficult. Under no circumstances, however, is the femoral vein collapsed at the point where it runs under the inguinal ligament, and a needle can be readily placed therein in deep shock, or, for that matter, even at the postmortem table.

It has been claimed that blood can be administered more rapidly intra-arterially than intravenously. This is not so. The rate at which blood leaves a bottle and enters a blood vessel is a function of only four variables: (*a*) the pressure in the bottle, (*b*) the pressure in the vessel, (*c*) the resistance of the needle and the tubing, and (*d*) the viscosity of the blood. It is apparent that with the same blood, tubing and needle, and a given pressure head in the bottle, blood will be delivered more rapidly into a vein than into an artery.

The main body of laboratory experimentation that has provided the basis for the clinical use of intra-arterial infusion is found in the work of Kohlstaedt and Page [7d] and Robertson, Trincher, and Dennis.[8] The latter authors found that intra-arterial infusions restored flow to the paw four times as rapidly as comparable volumes given intravenously. What has been generally overlooked is that they gave the intra-arterial infusions four times as rapidly. The correlation between rate of administration and rate of recovery is interesting.

In the experiments of Kohlstaedt and Page, dogs were kept in the hypotensive state by bleeding until it was felt that they had reached a similar degree of circulatory deterioration as evidenced by their response to angiotonin or epinephrine. One group of dogs then received all of their lost blood arterially and another group received all of their lost blood intravenously. Under these circumstances a significant difference was not noted. It was then determined that, if dogs received less

than 33% of the removed blood, none survived. Experiments similar to the above were carried out, using 50% of their lost blood for arterial and venous reinfusion. A difference was noted that appeared to favor the intra-arterial route. Again, however, the arterial infusions were given about four times as rapidly as the venous infusions, and calculations from that data reveal the following facts: The dogs were held in sustained hypotension an average of 50.4 minutes, at which point both groups were adjudged to be in similar states of circulatory deterioration. Thereafter the dogs receiving 50% of their lost blood by reinfusion arterially got it in an average of 9.2 minutes. The dogs getting venous reinfusion received it in an average of 33.5 minutes. Thus the dogs receiving blood arterially had the complement of blood reinfused in a period which was 18% of the average time of sustained hypotension. The dogs receiving blood intravenously, however, got their complement of blood reinfused in a period which was 67% of the average time of sustained hypotension. This could be construed as a substantially greater insult to the dogs in the venous infusion group. Maloney and co-workers [9] in more recent work used a similar infusion rate for both groups and found no significant difference in mortality.

The feeling is widespread that blood administered rapidly intravenously will produce cardiac failure, whereas intra-arterial transfusions given at the same rate are less likely to cause this complication. As Pierce, Robbins, and Brunschwig [10] point out, the danger of myocardial failure due to transfusion only becomes a factor when the blood pressure has returned to normal, or when there is underlying cardiac disease. Beattie and co-workers [11] have given both arterial and venous transfusions to dogs with normal blood pressures; this resulted in a similar pattern of cardiac failure after transfusion by both routes.

Published reports are available which demonstrate that, at least under certain circumstances, massive venous infusion can produce as spectacular a therapeutic response as arterial infusion. Case D reported by Pierce and associates [10] is quoted as follows:

> CASE D.—(Example in which it is the impression of the authors that the patient's life was saved by ultrarapid massive transfusions.) F. A. R., female, aged 52 years. Resection of large multiple recurrent masses of leiomyosarcoma from retroperitoneal region was performed. Preoperative blood pressure was 130/80. When the abdomen was opened and the intra-abdominal tension released there was sudden hemorrhage, and 1500 cubic centimeters of blood rapidly accumulated in the aspiration bottle. The blood pressure and pulse could not be obtained. The patient was breathing very shallowly and was very pale and cyanotic; *1700 cubic centimeters of blood were injected during 7 minutes* [intravenously] with immediate return of blood pressure to 100/80 and pulse rate determinable at 120 per minute. At the close of the operation 1 hour and 10 minutes later, the blood pressure was 110/60, pulse 100. During convalescence there was no evidence of hepatic damage from "citrate intoxication." Five months later she was seen again as an outpatient, had been doing a moderate amount of housework and felt well. However, there was recurrence of the neoplasm in the lower abdomen and no further treatment was considered.

Aldrich and Morton [12] demonstrated that the arterial pressure of dogs reduced to severe hypotensive levels for brief periods (10 minutes) responded as well to venous as to arterial infusion when these were given at similar rates. Wiener [2] has also suggested the need for controlled experimentation in which the rates of the arterial and venous infusions were carefully controlled. More recently, Fitzpatrick and Powers,[13] in experiments on dogs bled into severe hypotension, observed that the return of arterial pressure to normal levels can be accomplished at least as rapidly by the intravenous route.

Extensive hemodynamic observations on the response to intra-arterial and intravenous transfusions have been made by Maloney and co-workers.[9] The effect on cardiac output was not found to be altered by the route of infusion. Similar observations were obtained by Fitzpatrick and Powers.[14]

The authors can conceive of certain circumstances under which intra-arterial infusion might be superior to the intravenous route. In the presence of severe mitral stenosis in a patient undergoing corrective valvular surgery, the mechanical obstruction between the right and left ventricles could conceivably render the intra-arterial route more effective if sudden massive blood replacement is required.

It is important here to emphasize one possible outstanding exception, namely, either the presence of cardiac arrest or an almost completely ineffective cardiac contraction. Under these circumstances, blood injected intravenously would not be "passed along" to the arterial side in any significant quantities. An extremely rapid and massive intra-arterial transfusion might conceivably influence coronary flow enough to aid in the initiation or recovery of an adequate heart beat more effectively than a venous infusion. The coronary roentgenograms obtained by Glasser and Page [15] and Jones [16] showing coronary filling under these circumstances are of particular interest. In short, we feel that unless it can be demonstrated that blood given intravenously is not readily "passed along" by the right ventricle and ejected by the left, no convincing rationale in support of the superiority of intra-arterial transfusion has yet been brought to light. This is not to say that intra-arterial transfusion is not superior, but simply to state that no apparent explanation or well controlled experimentation in support of its superiority has come to our attention.

In constructing the experiments outlined above, an attempt was made to simulate the clinical situation as closely as possible, however crude this approximation may have been. The average rate of administration was 1.67 cc. per second or 100 cc. per minute in dogs with an average weight of 16.9 kg. This would be roughly comparable to 445 cc. per minute in a man weighing 75 kg. It is unlikely that this rate is frequently exceeded in clinical practice.

The objection to the use of an open-chest preparation will quite reasonably find many sympathetic ears, for the circulation is, of course, modified by the use of intermittent positive pressure breathing. It should be remembered, however, that, in the above experiments, both the arterial and venous infusions were given under strictly comparable conditions and that intratracheal insufflation was present in both instances. Since positive pressure breathing influences the circulation mainly by its suppression of venous return, it is reasonable to expect that, if anything, it would diminish the response to a venous rather than to an arterial infusion.

An attempt was made to compare the response to arterial and venous infusions in a variety of shock states rather than to examine one particular phase. These included dogs that had been in shorter and longer periods of hemorrhagic hypotension and dogs that were both responsive and unresponsive to an increase of blood volume. In no instance was the route of infusion found to make any difference.

It has previously been suggested that the rate at which arterial transfusions are usually given might account for the striking therapeutic responses reported. The data presented support this view.

In the authors' opinion the most recent review of the literature by Seeley and Nelson [1] has gone right to the core of the matter. They state, "With pressure, massive quantities of blood can be infused very rapidly [intra-arterially] with the added advantages of immediate perfusion of the renal, coronary, and medullary arteries." They also state, "On a practical clinical basis the body will accept large quantities of blood more rapidly by the arterial than by the venous route." If these contentions were true, a stronger rationale would be available on which to predicate the superiority of intra-arterial transfusions. Their validity has not as yet been experimentally demonstrated, however, nor do they receive support from the data presented.

It has been felt that one of the virtues of the intra-arterial method has been its eloquence in pointing out the need for speed in the treatment of severe shock, a substantial contribution. Coronary flow, however, is not benefited by the choice of the intra-arterial route.

In the course of these experiments, data (fig. 1 and 2) were obtained that suggested that insufficient coronary flow may play an important role in severe oligemic shock. The results of experiments aimed at testing this hypothesis will be published elsewhere.[6]

SUMMARY AND CONCLUSIONS

Rapid intra-arterial and intravenous infusions of blood and dextran were administered to dogs in controlled hemorrhagic hypotension. These were given alternately in equal amounts and at similar rates. It was found that the intra-arterial route did not elevate coronary flow or arterial pressure either more rapidly or more effectively than the venous route. Similarly, the route of infusion did not change the effect on either right or left auricular pressures or pulmonary arterial pressure. These findings were observed in the dog with acute hemorrhagic hypotension, in the dog with prolonged hemorrhagic hypotension, in the dog unresponsive to blood replacement, and in the dog on the point of death. One dog on the point of death due to hemorrhagic shock was given a rapid intra-arterial infusion of all of his lost blood. This failed to improve his status. In the ensuing 5 minutes and 45 seconds, 455 cc. of blood were perfused through his left main coronary artery and this was followed promptly by a sustained therapeutic response. It is suggested that, although insufficient coronary flow may be an important complicating factor of severe oligemic shock, intra-arterial infusion is no more effective than intravenous infusion in correcting that insufficiency.

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IMPORTANCE OF NEGATIVE PRESSURE PHASE IN MECHANICAL RESPIRATORS

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The management of medical emergencies involving respiratory failure remains an important challenge in clinical medicine. Despite many years of vigorous controversy, the question of which is the best mechanical method of artificial respiration is still unsettled. The problem concerns in part the respective merits of respirators producing intermittent positive pressure and those producing alternating positive-negative pressure. Thompson,[1] and Birnbaum and Thompson [2] have stood almost alone in claiming for positive-negative pressure a desirable effect on the circulation. These workers found that alternating positive-negative pressure stimulates the return of normal respiration and produces some degree of passive circulation in the dead animal. Other investigators believe that a negative pressure phase during expiration serves no useful purpose.[3] The opinions of those opposed to the use of any type of mechanical breathing machine, especially those employing a negative pressure phase, have been clearly stated by Henderson.[4] As Schwerma and Ivy [5] have pointed out, many investigators have since produced evidence of the absence of pulmonary damage following the use of respirators in both animals and man.[6]

Much of the confusion in this field may be attributed to the fact that the breathing machines under consideration have been evaluated generally on persons in a normal physiological state rather than on apneic patients in emergency situations. The present studies were designed to compare the intermittent positive and positive-negative type respirators in both the relatively normal patient and the patient with respiratory and/or

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Because of space limitations, some of the bibliographic references have been omitted and will appear in the authors' reprints.

The opinions expressed herein are not to be construed as necessarily reflecting the views of the United States Departments of the Navy or Army.

This study represents a cooperative effort of the Naval Medical Field Research Laboratory, Camp Lejeune, N. C., and the Division of Anesthesiology, Washington University School of Medicine, St. Louis.

From Camp Lejeune, N. C. (Lieutenant Maloney and Lieutenant Commander Handford), the Army Chemical Center, Maryland (Lieut. Balla), and Washington University School of Medicine (Drs. Elam, Eastwood, Brown, and Ten Pas).

circulatory inadequacy. This study affords an unusual opportunity to check with clinical subjects the results, previously reported, from experiments on dogs.[6c]

METHODS

Observations were made on a series of 25 persons, some of whom were being anesthetized for routine surgical procedures and others were being treated on the hospital wards for respiratory failure. Some patients were in a normal state except for light anesthesia, while others were moribund and receiving artificial respiration as a lifesaving measure. A variety of mechanical devices representing both the intermittent positive and the positive-negative type were used to administer artificial respiration. Figure 1 illustrates the pressure patterns produced by the machines tested.

Airway pressure was recorded with either an "electromanometer" or a strain gage. Blood pressure and cardiac output were measured as indexes of the circulatory effects of the respirators. Blood pressure was recorded from an intra-arterial needle with a second "electromanometer." Measurements of cardiac output were done by the dye injection method as modified by Friedlich, Heimbecker, and Bing.[7] This method is based on Stewart's principle,[8] in which

$$\text{cardiac output per minute} = \frac{Q \times 60}{MT}$$

where Q = the quantity of Evan's blue dye injected into the venous system; M = the mean concentration of dye measured in the arterial system prior to recirculation; and T = the time in seconds for the passage of M past the site of arterial measurement. Ventilatory adequacy of the various machines was followed with the "ventigrator"[9] to measure minute volume or with an infrared carbon dioxide analyzer for continuous indication of alveolar carbon dioxide tension. All respirators tested were found to produce more than adequate pulmonary ventilation, so attention was focused primarily on the circulatory effects of the different machines. No difficulty was encountered when the respirators were employed in patients with normal breathing, since the devices rapidly produced hyperventilation apnea. All the physiological measurements were recorded on a multichannel direct-writing oscillograph. Owing to limitations imposed by the patients' conditions and other factors, it was not possible to obtain all of these observations in every patient studied.

ARTIFICIAL RESPIRATION IN NORMAL PERSONS

Blood Pressure.—In the absence of an impaired circulation, the administration of intermittent positive pressure or alternating positive-negative pressure does not produce significant changes in arterial blood pressure.[10] The present studies confirmed this observation in normal persons, lightly anesthetized patients, and patients with respiratory failure who were out of acute danger, e. g., patients with long-standing poliomyelitic paralysis.

Cardiac Output.—Cardiac output is an important consideration in artificial respiration, since it determines the rate of oxygen delivery to the vital organs. In the group of normal patients, cardiac output was little affected by intermittent positive and positive-negative pressure respirators. Twenty measurements on five relatively normal patients show cardiac output to be, on the average, 12.4% lower (statistically insignificant difference) with intermittent positive pressure than with positive-negative pressure. These observations, which confirm the results reported by Motley and co-workers,[3b] indicate that the circulatory effects of artificial respiration are of minor importance in normal persons. Unfortunately, studies made in relatively normal patients, such as those above, are not pertinent to the evaluation of the safety of the respirators. The following experiments clarify this contention.

ARTIFICIAL RESPIRATION DURING RESPIRATORY AND/OR CIRCULATORY FAILURE

In distinct contrast to the results in normal persons are the findings in the group of patients who had some degree of respiratory and/or circulatory inadequacy. Both the intermittent positive and the positive-negative type of respirator produced adequate ventilation; however, devices that employ positive pressure only were found to cause a fall in blood pressure and cardiac output, sometimes of sufficient magnitude to threaten the life of the patient. On the other hand, the use of ma-

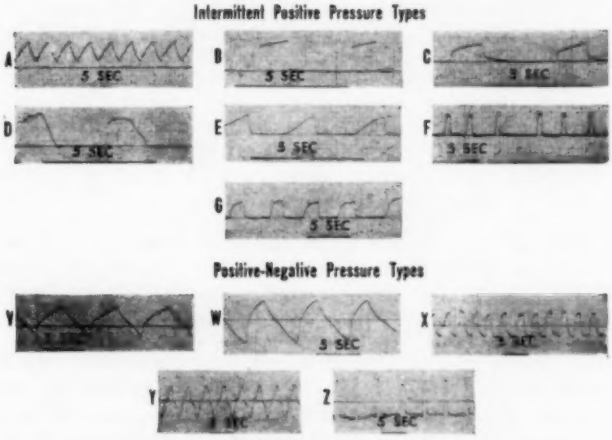

Fig. 1.—Airway pressure curves produced by respirators of the intermittent positive pressure type: *A*, commercial model, automatic cycling; *B*, commercial insufflator, hand-operated; *C*, a "flow-sensitive" valve, hand-cycled; *D* and *E*, manually operated hand bellows; *F* and *G*, manual compression of breathing bag on standard anesthesia machine. Positive-negative pressure type: *V*, commercial model, automatic cycling; *W*, experimental model, automatic cycling; *X*, hand-operated accordion bellows; *Y*, Drinker-type body respirator; *Z*, hand-operated accordion bellows (note negative mean mask pressure).

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3*b*. Motley, H. L., and others: Intermittent Positive Pressure Breathing: A Means of Administering Artificial Respiration in Man, J. A. M. A. **137**: 370-382 (May 22) 1948.

4. Henderson, Y.: Return of Pulmotor as "Resuscitator": Back-Step Toward Death of Thousands, Science **98**: 547-551 (Dec. 24) 1943.

5. Schwerma, H., and Ivy, A. C.: Safety of Modern Alternating Positive and Negative Pressure Resuscitators, J. A. M. A. **129**: 1256-1261 (Dec. 29) 1945.

6*b*. Handford, S. W., and Ricchiuti, N. V.: Positive and Alternating Positive-Negative Pressure Resuscitation from Curare Poisoning, J. Appl. Physiol. **3**: 535-553 (March) 1951.

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chines employing a negative pressure phase during expiration avoided this circulatory depression, and permitted the patient to maintain blood pressure and cardiac output at more normal levels.

Blood Pressure.—While a continuous recording of blood pressure was being made, artificial respiration was administered alternately by each of the two types of mechanical breathing machine. The intermittent positive pressure machines caused a precipitous fall in arterial pressure that could be reversed by the addition of a negative pressure phase during expiration. The following cases are illustrative.

CASE 1.—A 52-year-old white woman was admitted to the neurosurgical service with a diagnosis of a cerebellopontile angle tumor. During craniotomy, respiratory arrest occurred, and the patient's blood pressure and pulse became unobtainable. Artificial respiration was administered by manual compression of the breathing bag on a standard anesthesia machine. When the patient had been moved to the recovery room, an arterial puncture was performed, and arterial blood pressure and airway pressure were continuously recorded to evaluate the patient's responses to a number of mechanical respirators. After a positive-negative pressure respirator was applied, the patient's blood pressure rose to 120/65. Figure 2 shows that when an intermittent positive pressure machine was substituted, the blood pressure fell within one minute to a level of 36/17. If this type of artificial respiration had been continued, it is unlikely that the patient would have survived longer than several minutes. A similar response was seen to all types of intermittent positive pressure, the severity of the circulatory depression increasing with an increase in the mean pressure applied to the patient's airway. The patient was maintained for 48 hours on positive-negative pressure breathing, at the end of which she was mentally alert, although completely paralyzed below the first cervical segment. Good circulatory status was maintained by vigorous intravenous therapy and continuous administration of arterenol. After this lapse of 48 hours, the type of respirator employed was no longer of consequence. The patient subsequently died from the incurable intracranial lesion.

CASE 2.—In a 67-year-old white woman undergoing a choledochotomy, moderate circulatory and respiratory depression resulted from inadvertent administration of a double dose of premedication drugs (morphone 10 mg., meperidine [Demerol] 75 mg., pentobarbital [Nembutal] 100 mg., atropine 0.4 mg., and scopolamine 0.3 mg.). Changing from a positive-negative respirator to intermittent positive pressure administered by the anesthetist with manual compression of the breathing bag caused the arterial blood pressure to fall from 103/58 to 75/53 (fig. 3). Intermittent positive pressure respiration caused circulatory depression, despite the fact that it was carefully administered with an expiratory phase two to three times as long as the positive inspiratory phase (type F, fig. 1).

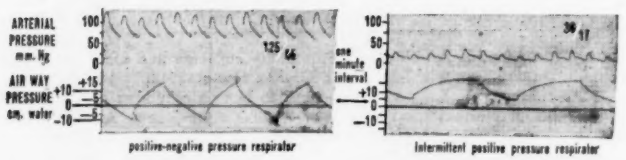

Fig. 2.—Results of use of positive-negative and intermittent positive pressure respirators in patient with apnea and shock. Positive-negative pressure (type V curve, fig. 1) permitted maintenance of normal blood pressure; high mean mask pressure of type A curve (fig. 1) depressed blood pressure to 36/17.

CASE 3.—A 50-year-old white woman was undergoing colectomy. Controlled respiration was being maintained with intermittent positive pressure breathing. (The following events are recorded continuously in figure 4.) Blood pressure was 74/43 as the result of moderate blood loss, anesthesia, and positive pressure respiration. Curare, 18 mg., was administered in a single dose. An immediate and dangerous fall in blood pressure to 23/17 occurred, presumably as the result of the administration of curare. Since the degree of hypotension was severe, a negative pressure phase was added to the artificial respiration. Gradual recovery in blood pressure began immediately. Ephedrine, 50 mg., was given intravenously in divided doses, without apparent effect. When arterial pressure had risen to 62/20 and it was apparent that the patient would

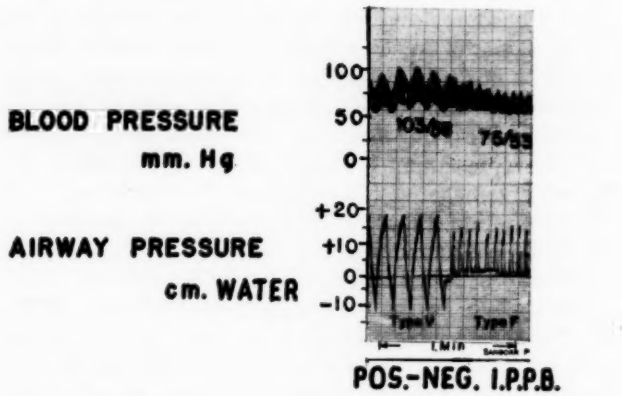

Fig. 3.—Shock type of response following change from positive-negative (pos.-neg.) to intermittent positive (I.P.P.B.) pressure respiration in patient under nitrous oxide, thiopental, and meperidine anesthesia for choledochotomy. Manual compression of the breathing bag (type F curve, fig. 1) caused sharp fall in blood pressure, despite long expiratory pause.

survive, the "control" observations were made by returning to the use of intermittent positive pressure. Type G curve (fig. 1) pressure breathing was administered by manual compression of the breathing bag, long expiratory pauses being allowed at zero pressure. The patient's recovery ceased, and blood pressure slowly fell to 55/33. (It is worthy of note that compression of the breathing bag in this manner is the only method of artificial respiration ordinarily available to the anesthetist in this type of emergency.) Alternating positive-negative pressure breathing was, therefore, reinstituted, and blood pressure rose immediately to 93/50. Fifteen minutes later the patient could tolerate intermittent positive pressure with a low mean mask pressure, but a high mean mask pressure still produced serious circulatory depression. By the end of the operation, the circulatory and respiratory systems had recovered, and the patient convalesced without sequelae.

Cardiac Output.—In the group of patients with circulatory inadequacy, changes in cardiac output with the positive-negative and intermittent positive pressure artificial respiration were different from those encountered among relatively normal patients. Circulatory inadequacy was manifested by hypotension, prolonged capillary refilling, and, occasionally, low pulse pressure. When circulatory inadequacy existed, artificial respiration with positive pressure alone regularly resulted in a severe depression of cardiac output; the addition of a negative pressure phase during expiration improved systemic blood flow. This elevation in cardiac output is of great physiological importance, since it signifies improved oxygen delivery to the body tissues.

A graphic summary of all cardiac output data is presented in figure 5. The patients are arranged in two groups, those who are relatively normal, and those who have some degree of circulatory inadequacy as evidenced by hypotension, decreased pulse pressure, or prolonged capillary filling. This grouping was done on the basis of clinical observation, without recourse to the recorded physiological data. As stated previously, the cardiac output of relatively normal patients was, on the average, 12.4% lower during intermittent positive than

during positive-negative pressure artificial respiration; however, those patients who manifested clinical signs of circulatory failure had a reduction of 41.9% in cardiac output when intermittent positive pressure artificial respiration was used. (This is statistically highly significant; probability is less than 1 in 100 [$p = < 0.0086$] that these results occurred by chance.) The use of this type of pressure breathing severely aggravated preexisting circulatory failure. Positive-negative pressure provided adequate pulmonary ventilation without jeopardizing the failing circulation.

In summarizing these results, it may be said that artificial respiration can be administered to the relatively normal person with either intermittent positive or positive-negative pressure without adverse effects. In the person with clinical signs of circulatory inadequacy, intermittent positive pressure respiration may produce profound circulatory depression. The addition of a negative pressure phase during expiration allows artificial respiration to be carried out without circulatory depression.

COMMENT

The adverse effects of positive airway pressure on the circulation of animals in shock have been pointed out by Seevers and Waters,[11] Beecher, Bennett, and Bassett,[12] and Carr and Essex.[13] Not until recently was it emphasized by Sarnoff and his associates[14] and by others[15] that the circulatory effects of positive pressure breathing were of significance in the clinical treatment of respiratory failure. Appreciation of the circulatory effects of artificial respiration has been delayed, because it is not ordinarily possible in a clinical emergency to make controlled observations with different respirators. The present experiments emphasize the necessity of evaluating respirators under the conditions in which they are actually needed.

The striking difference between the effects of the two types of respirator can be explained on the basis of physiological principles that have been known for years.[10b] When positive pressure is used to inflate the lungs, an elevation of the pressure in the heart and great veins occurs. This elevation of pressure within the thorax prevents venous blood from returning to the heart from peripheral parts of the body. As venous return decreases, so does cardiac output and blood pressure. In the normal person this crisis is met by vasoconstriction, mobilization of pooled blood, and elevation of peripheral venous pressure, until venous return to the heart is restored. Under ordinary circumstances, therefore, a reasonable degree of positive intrathoracic pressure has little effect on the patient. Under circulatory stress, however, the body does not have available the necessary compensatory circulatory mechanisms. Positive intrathoracic pressure produces, therefore, prolonged reduction in venous return, cardiac output, and blood pressure. The salutary effect of a negative pressure phase during expiration is due to the increased venous return that is brought about by the augmented negative intrathoracic pressure. Alternating positive-negative pressure impedes the circulation during inspiration but compensates for this by aiding the circulation during expiration. Inflation of the lung with positive pressure does not obstruct blood flow through the pulmonary vascular bed any more than does the same degree of inflation occurring during normal inspiration.[16] The circulatory changes occurring in these patients are, therefore, attributable principally to alterations in venous return.

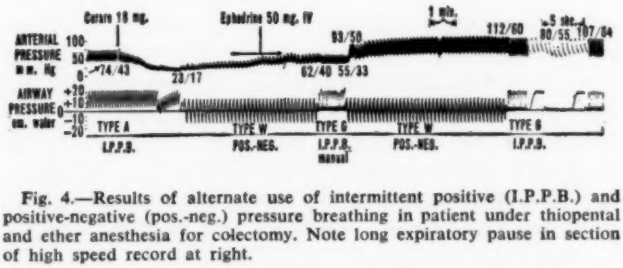

Fig. 4.—Results of alternate use of intermittent positive (I.P.P.B.) and positive-negative (pos.-neg.) pressure breathing in patient under thiopental and ether anesthesia for colectomy. Note long expiratory pause in section of high speed record at right.

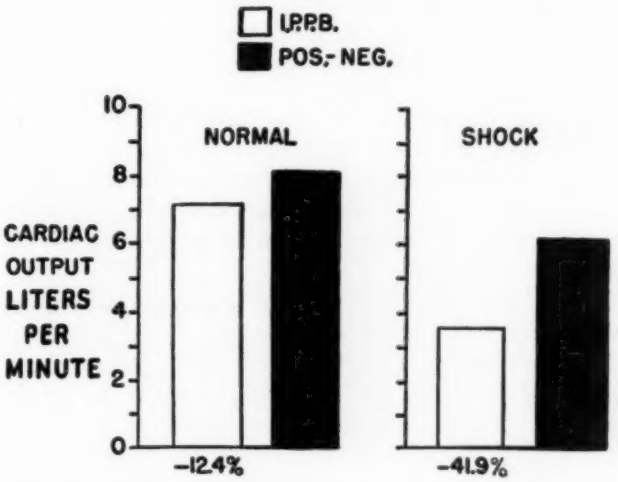

Fig. 5.—Comparison of effectiveness of intermittent positive (I.P.P.B.) and positive-negative (pos.-neg.) pressure respirators in normal persons and in patients in shock (normal: 20 measurements in five patients; shock: 20 measurements in four patients).

The shape of the airway pressure curve per se and the rate at which its various parts rise and fall were observed to be of little significance. There did appear to be good correlation between circulatory effects and the mean mask pressure during the whole respiratory cycle. Thus, the respirator producing curve A (fig. 1) was found to be the most deleterious of those studied, while the respirators producing curves C, F, and G were the best tolerated of the intermittent positive type. Despite the low mean mask pressure of these latter three types, they did not compare favorably with those having a negative pressure phase. On the basis of theoretical considerations as well as experimental observations it is recommended that the negative phase be of such pres-

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sure and duration that the average pressure during the whole respiratory cycle is at least as low as atmospheric pressure. Altering the rate of respiration without changing the mean mask pressure had little effect. If the rate were increased at the expense of the expiratory pause (mean mask pressure thus being increased), the circulatory changes were exaggerated.

A major fear in the past has been that positive airway pressures may produce alveolar rupture. During wide experience with mechanical respirators in recent years pulmonary damage has not been found to occur with the pressures employed by the ordinary respirators. This is in keeping with the observation that a differential pressure of 45 mm. Hg across the lungs is developed without harm by the normal person in performing a vital capacity test.

It is likely that the dangers of negative airway pressure have also been overemphasized. The body type Drinker respirator employing positive and negative intra-tank pressure has been demonstrated to be the mechanical and physiological equivalent of the alternating positive-negative type respirator, insofar as its effect on the lungs and circulation are concerned.[17] The fact that hundreds of poliomyelitis patients have received both intermittent positive and alternating positive-negative pressure with these body respirators without apparent pulmonary damage would seem to be a testimonial for the safety of alternating pulmonary pressures as a means of artificial respiration, as far as the lungs are concerned.

The results of these studies should not be construed as a general indictment of positive pressure breathing. Although intermittent positive pressure has untoward effects when administered in emergency situations, it will undoubtedly continue to be useful in increasing altitude tolerance, in certain forms of pulmonary therapy, and during the conduct of anesthesia in relatively normal patients having good circulatory status.

SUMMARY

Either the intermittent positive or the positive-negative type respirators may be safely employed in patients who are in an essentially normal circulatory state. The circulatory effects of respirators in emergency situations are not predictable on the basis of studies of such effects in normal persons. In patients with respiratory and/or circulatory failure, intermittent positive pressure type respirators may cause a depression of blood pressure and cardiac output of sufficient degree to threaten the life of the patient. The use of the alternating positive-negative pressure type respirators permits the administration of artificial respiration without endangering the circulation. Since the circulatory status of patients in need of artificial respiration is not uniformly good, it is recommended that a negative pressure phase be employed in mechanical respirators. Mechanical respirators employing alternating positive and negative pressures and having a mean mask pressure at least as low as atmospheric pressure are safe and effective means of producing artificial respiration.

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RESUSCITATION OF THE ASPHYXIATED NEWBORN INFANT

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Lieut. Martin H. Zwerling (MC), U. S. N. R.

It is generally agreed that responsibility for resuscitation of the newborn infant belongs to the anesthesiologist. Under ideal circumstances, an anesthesiologist is present in the delivery room to assume responsibility for resuscitation. Unfortunately, however, most hospitals cannot employ full-time board-qualified anesthetists on the obstetric service. Therefore, resuscitation of the newborn becomes a problem for the obstetrician, pediatrician, and otolaryngologist. The following review and suggested regimen of treatment are recommended as an outline for the attending physician to follow in the absence of a board-qualified anesthesiologist.

ETIOLOGY, PATHOLOGY, AND CLASSIFICATION OF ASPHYXIA

Little and Tovell's[1] excellent review of asphyxia of the newborn divides the etiological factors into three categories: factors associated with the mother, those with the products of conception, and those with the labor and delivery. First, the production of asphyxia neonatorum may be influenced by the mother by such unyielding factors as her age, her parity, and her health. The incidence of asphyxia increases markedly if the mother has passed the age of 35 to 40 years. Primiparas give birth to asphyxiated babies more frequently than multiparas until the eighth baby, when the incidence of asphyxia increases with parity. Cardiac diseases, cardiac failure, anemia, pulmonary disease, infections, diseases of the genitourinary and gastrointestinal tracts, metabolic diseases such as diabetes mellitus or thyrotoxicosis, deficiency diseases, hypertensive states, and the toxemias of pregnancy all markedly increase the incidence of asphyxia.[1] Second, the products of conception may be the basis for the production of asphyxia neonatorum and beyond the control of the physician. Congenital debility, congenital defects such as malformations of the respiratory and circulatory systems, diaphragmatic hernia, hypoplasia of the mandible, abnormal mobility of the tongue, and congenital disease such as syphilis and erythroblastosis fetalis have all been cited as factors tending to induce asphyxia. Immaturity has been considered the single most important

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The opinions or assertions contained herein are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

1. Little, D. M., Jr., and Tovell, R. M.: Collective Review: The Physiological Basis for Resuscitation of the Newborn, Internat. Abstr. Surg. 86: 417-428, 1948; in Surg., Gynec. & Obst., May, 1948.

factor involved in its production. The presentation and position of the fetus in utero are factors: breech, transverse, and occipitoposterior presentations and positions all increase the incidence of asphyxia.[1] Third, the events of the labor period and delivery are of tremendous importance in the production of asphyxia neonatorum, and during these times the decisions and actions of the attending physician may often determine whether the infant will live. The induction of labor with quinine and posterior pituitary extract can produce asphyxia. Long, dry labor or the long difficult labor associated with cephalopelvic disproportion increases the tendency toward asphyxia. Any traumatic type of obstetric manipulation, such as mechanical prevention of delivery until the obstetrician arrives, is condemned as a most dangerous practice. Other complications are anoxia of placental origin, such as that due to gross infarction, low insertion, placenta previa, and premature separation of the placenta; anoxia originating in the cord, due to prolapse, shortness, knotting or kinking, the cord about the neck, compression or torsion, or a velamentous rupture; and anoxia of uterine origin, such as tetany, a contraction ring, or hemorrhage. The type of delivery also influences the incidence of asphyxia. Version and extraction, high forceps, breech extraction, midforceps, cesarean section, and low forceps delivery without episiotomy are associated, in the order given, with a frequency of asphyxia higher than that accompanying spontaneous delivery. Finally, and frequently most important, analgesic drugs, anesthetic agents, and methods employed to allay the pains of childbirth are far too often the basic factors producing asphyxia neonatorum.[1]

The fundamental pathological lesion of asphyxia neonatorum clinically is complete atelectasis. The lung is a solid viscus filling the thorax because negative intrathoracic pressure has not developed.[1] The other pathological changes are congestion, edema, hemorrhage, and, finally, tissue degeneration, all occurring as the result of anoxia.

The prevention of fetal asphyxia is the problem of the obstetrician. The fetus must be assured sufficient oxygenation by the continuous administration of high oxygen to the mother during labor. This is most important during times of fetal distress. Asphyxiating anesthetics, particularly nitrous oxide, must contain safe mixtures of gas and oxygen. When saddle block or caudal anesthesia is used, maternal blood pressure must be maintained. When the maternal blood pressure remains below 80 mm. of mercury for five minutes or longer, fetal anoxia is almost always demonstrable. Blood pressure may be brought to normal by raising the patient's legs to give her an autotransfusion of her own blood pooled in the peripheral veins, followed by oxygen and intravenously administered vasopressor drugs (25 mg. of ephedrine sulfate). Depression of maternal blood pressure is probably rare, not occurring in over 300 cases in which saddle block anesthesia was used by one of us (J. L. B.). Certain systemic diseases of the mother, such as heart failure, pneumonia, or profound anemia, may be rare causes of fetal anoxia. Cyanosis in a pregnant woman suffering from these systemic diseases must be anticipated and treated immediately with oxygen. The commonest cause of fetal anoxia due to interference with the passage of oxygen from mother to fetus is probably premature separation of the placenta, or abruptio placentae. Fetal mortality in this condition ranges from 65 to 90%. Little can be done to prevent fetal deaths from this cause. It is important to individualize the therapy in each case. Some form of operative delivery may be indicated. The use of posterior pituitary extract prior to the birth of a baby should be rigidly restricted to true cases of secondary uterine inertia with no disproportion or other dystocia, and a single dose should never exceed 1 minim (0.06 cc.). Even then the drug is not without its dangers. In anoxia caused by cerebral injury to the fetus, the main injunction is the avoidance of trauma, particularly in such operative deliveries as midforceps, which carries a 30% mortality. Premature labors, which have a high incidence of fetal asphyxia, should be treated with care. No analgesia, except caudal or spinal anesthesia, should be allowed. The delivery should be effected with caudal, spinal, or local infiltration anesthesia and should be preceded by a liberal episiotomy. The use of prophylactic outlet forceps is indicated. The cord should not be clamped until pulsations have ceased; it should be stripped, allowing maximum blood to reach the baby.

Asphyxia, by definition, is failure of a person to breathe after 30 seconds. Most authors no longer use the older terms, asphyxia livida and pallida, having accepted the following classification proposed by Flagg [2]: 1. First stage, or stage of depression: The infant's breathing is slow and irregular; there is a tendency to cyanosis. 2. Second stage, or stage of spasticity: Respirations are irregular, gasping, or shallow, accompanied by marked cyanosis or pallor. Reflexes are present but may be sluggish. 3. Third stage, or stage of flaccidity: Respirations occur infrequently or cannot be demonstrated at all. The entire musculature of the body is flaccid. The jaw is completely relaxed, the glottic structures are collapsed, the laryngeal reflex is absent, and the larynx may be exposed easily. The apex beat may or may not be heard, and the circulation is failing.

INSTRUMENTS AND TECHNIQUE FOR RESUSCITATION

The following procedure is used for resuscitation of the newborn infant: 1. Cappe and Pallin [3] have reported a clever method of preparing a pharyngeal suction catheter. The distal 1 in. of an ordinary no. 14 French rubber catheter is cut off, and the new end is placed in a flame for three or four seconds. The scorched end of the catheter is then brushed vigorously with ether, imparting a nontraumatic, spongy consistency to the suction tip. An extra hole is cut in the catheter ¼ in. from the tip. 2. A plastic type of oropharyngeal airway is easily cleaned and is nontraumatic [3] (fig. 1). 3. In an electric suction machine the maximum suction power permitted should be 5 mm. of mercury. 4. Of the infant resuscitators either the intermittent positive pressure type of Kreiselman, the alternating positive and negative pressure type of Emerson, or the E and J may be used. The maximum positive pressure recommended with the inter-

2. Flagg, P. J.: The Art of Resuscitation, New York, Reinhold Publishing Corporation, 1944.

3. Cappe, B. E., and Pallin, I. M.: Practical Aspects of Resuscitation of the Newborn, New York J. Med. 51: 1797-1800 (Aug. 1) 1951.

mittent positive pressure resuscitator is 12 mm. of mercury. A positive pressure of 13 to 14 mm. of mercury with a negative pressure of 9 mm. of mercury is automatically given by the alternating pressure resuscitators.[3] 5. A Chevalier Jackson infant laryngoscope, a Chevalier Jackson 3 or 3½ mm. by 30 cm. bronchoscope, and a flexible tip aspirating tube 35 to 40 cm. long that will pass through the Jackson infant bronchoscope are frequently used. In our opinion, the Jackson laryngoscope and bronchoscope are the finest instruments available for the intubation of an infant. 6. A ureteral plastic, whistle tip, no. 9 French catheter is excellent for aspiration of the trachea of the newborn infant through the infant laryngoscope. 7. A no. 14 French urethral catheter is used for aspiration of the stomach contents of all infants delivered by cesarean section (fig. 2).

There are four principles of resuscitating the asphyxiated newborn child: 1. The air passage must be cleared. 2. The body temperature must be maintained by keeping the baby warm. 3. The baby must be handled gently and

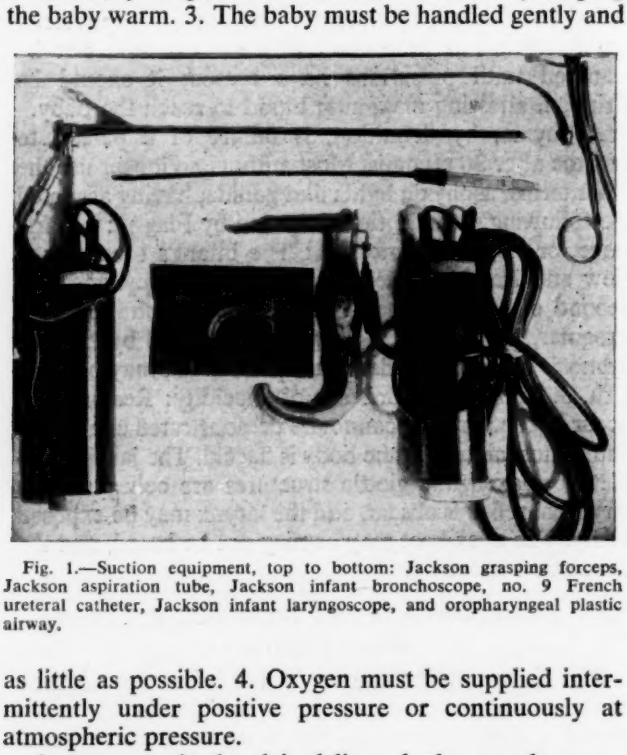

Fig. 1.—Suction equipment, top to bottom: Jackson grasping forceps, Jackson aspiration tube, Jackson infant bronchoscope, no. 9 French ureteral catheter, Jackson infant laryngoscope, and oropharyngeal plastic airway.

as little as possible. 4. Oxygen must be supplied intermittently under positive pressure or continuously at atmospheric pressure.

As soon as the head is delivered, the mouth, nasopharynx, and nares should be suctioned with the no. 14 French rubber catheter. When the delivery is completed, the infant is placed in an inverted position, the trachea is milked, and the mouth, nasopharynx, and nares are again suctioned with the no. 14 French rubber catheter. The infant is then placed on the mother's abdomen and observed. There are now two possible phases through which the infant may progress. The infant may progress normally, that is, breathe spontaneously and regularly while lying on the mother's abdomen. Occasionally, it is necessary to massage the skin over the spine gently in order to initiate respirations. If infant respirations are normal, the cord is not clamped until it ceases to pulsate. After the cord is ligated, the child is placed in the preheated Kreiselman resuscitator in the Trendelenburg position at an angle of 15 degrees. Oxygen at 4 liters a minute is then given by the continuous flow oxygen mask for a period of 10 minutes. If, at the end of that period, his color remains pink and he shows no sign of distress, the child is removed to the nursery. If the child shows signs of obstructive breathing, the cord is clamped and the child is transferred to the Kreiselman resuscitator. The pharynx is again suctioned, and the tracheobronchial tree is aspirated. Suction of the tracheobronchial tree is accomplished by passing the Jackson infant laryngoscope to expose the larynx and then aspirating the trachea with a no. 9 French plastic whistle tip ureteral catheter using 5 mm. of mercury suction pressure.

The stage of asphyxia is determined. The child is in the first stage, or stage of depression, if he has slow and irregular respiration and recurring cyanosis. The infant resists movements of his head and extremities; his laryngeal reflex is normal. Treatment in this phase of depression consists of tracheal aspiration as outlined above, insertion of a plastic type of oropharyngeal airway, and administration of intermittent positive pressure at 12 mm. of mercury. When respirations become regular, continuous flow oxygen at 4 liters per minute is used in place of the intermittent positive pressure. When the color remains pink and respirations are regular for a period of 20 minutes, the child is placed in an incubator for the next 24 hours. A continuous flow of oxygen at 8 liters per minute is maintained in the incubator. The child is observed closely for signs of recurring asphyxia. The pharynx is aspirated frequently while the child is in the incubator. Diagnosis of stage two, or the stage of spasticity, is made if the respirations are gasping, irregular, or shallow, and if there is marked cyanosis or pallor. In stage two, respirations recur at long intervals and the glottic reflex is present, but decreased. Treatment of stage two is the same as for stage one, except that the physician should be alert for indications of symptoms listed in stage three. In stage three, or the stage of flaccidity, the child is dying. All muscles are completely flaccid. The jaw is totally relaxed, and there is no reflex spasm of the glottis. There may or may not be an apex beat audible. Respirations are infrequent or completely absent. Treatment of the stage of flaccidity consists first of the passage of the 3 or 3½ mm. bronchoscope through the infant laryngoscope according to the technique of Jackson and Jackson.[4] This method is described below and is based on a series of lectures in bronchoesophagology by Dr. C. L. Jackson, which were attended by one of us (M. H. Z.).

There are four steps in the passage of the bronchoscope through the laryngoscope: 1. The laryngoscope is grasped in the left hand while the first and second fingers of the right hand retract the upper lip of the infant. The spatular end of the laryngoscope is passed along the right side of the anterior two-thirds of the infant's tongue. On reaching the posterior third of the tongue, the tip of the laryngoscope is directed toward the midline and, by a lifting movement, the dorsum of the tongue is raised. The epiglottis, which is now visible, should also be elevated by passing the laryngoscope posterior to the epiglottis for 1 cm. and again elevating. The interior of the larynx is now visualized. 2. The infant bronchoscope is now grasped in the right hand, and its handle is

4. Jackson, C., and Jackson, C. L.: Bronchoesophagology, Philadelphia, W. B. Saunders Company, 1950.

directed to the right. The vision of the operator's right eye is transferred from the laryngoscope to the bronchoscope, and the bronchoscope is advanced through the laryngoscope until a good view of the left vocal cord is obtained. At this point, the beveled tip of the bronchoscope has passed through the glottis, and, with a quick further lift with the laryngoscope, the bronchoscope is now passed into the trachea. 3. After the bronchoscope has been advanced to the second or third tracheal ring, the handle of the laryngoscope is rotated to the left, the slide removed, and the laryngoscope withdrawn. Care should be taken that the bronchoscope remains in the trachea while removing the laryngoscope. 4. After aspiration of the trachea, the bronchoscope is advanced to the carina and the right and left main bronchi are inspected and aspirated. The position of the infant is extremely important in introducing the endotracheal tubes. The vertex of the infant's head is elevated 5 cm. above the table by an assistant or by a pack of sheets until the bronchoscope is inserted. For step four, the head is lowered level with, or even below, the table top.

After passage of the infant bronchoscope, the trachea and right and left main bronchi are aspirated with a flexible tip metal aspirator of Jackson. After this, the intermittent positive pressure apparatus (Kreiselman) is connected to the branch inlet of the bronchoscope, and intermittent positive pressure is administered with the proximal mouth of the bronchoscope occluded by the operator's thumb. It is well to discontinue the intermittent positive pressure every few minutes in order to observe signs of spontaneous respirations. At the first sign of spontaneous respiration the positive pressure tube is removed from the branch inlet of the bronchoscope and continuous oxygen flow is substituted. Continuous oxygen at 4 liters per minute is then given through the bronchoscope until reflex activity of the glottis appears. At this point the bronchoscope is removed, the plastic oropharyngeal airway is inserted, and oxygen by mask is given. When the attending physician is satisfied that the child's color and respirations are satisfactory (a period of 20 minutes of normal respirations is usually sufficient) the child is placed in an incubator and given continuous oxygen flow at 8 liters per minute. He should be observed and suction applied when necessary by a trained observer for the subsequent 24 to 48 hours.

REPORT OF CASES

CASE 1.—A 25-year-old para 1, gravida 2, was admitted to the U. S. Naval Hospital, Charleston, S. C., on Dec. 20, 1951, with a complaint of painless vaginal bleeding. Immediately after admission the patient received 1,000 cc. of whole blood by transfusion and was then placed on bed rest under observation. A tentative diagnosis of placenta previa was made. On Jan. 5, 1952, 17 days after admission to the hospital, the patient went into labor. Blood loss during hospitalization was minimal. The baby was delivered from below, after three and one-half hours of labor, with low forceps under a saddle block anesthetic. The delivery was not difficult. The source of bleeding was a marginal insertion of the placenta. Immediately after delivery the baby was noted to have respiratory difficulty. Inspiratory subcostal and supraclavicular retractions were noted. The nasopharynx and mouth were suctioned, but intratracheal intubation was not performed in the delivery room. Continuous oxygen was administered by means of a face mask for a few minutes. The baby was taken to the nursery and placed in an incubator, where it continued to have respiratory difficulty. An expiratory stridor was noticed. The otolaryngological department was called for consultation. Approximately 15 minutes following delivery bronchoscopy was performed. A moderate amount of brownish mucus was aspirated from the trachea. The right main bronchus was identified through the bronchoscope. The left main bronchus was narrow, and the bronchoscope could not be passed into it. An accessory opening was noted at the carina, but its significance was not realized. The tongue of the infant appeared extremely large. Traction on the tongue prevented it from blocking the pharynx and seemed to improve respiration. A suture was placed in the tip of the tongue and taped to the infant's body to provide continuous traction on the tongue. While the respiratory difficulty did not increase, the baby continued to do poorly and died 18 hours after delivery.

At postmortem examination the following pathological diagnoses were made: congenital atresia of esophagus, with tracheoesophageal fistula (Ladd and Gross, type 2); tracheomalacia, middle one-third of trachea; atelectasis of lungs, obstructive; acute passive congestion of viscera; and hepatomegaly. The finding on bronchoscopy that suggested the possibility of a tracheoesophageal fistula was not considered too seriously. Had sufficient importance been attached to it by the attending bronchoscopist, an attempt might have been made to pass a catheter into the infant's stomach. This simple procedure might have confirmed the diagnosis. Discussion of the possible surgical treatment of the tracheoesophageal fistula is beyond the scope of this paper.

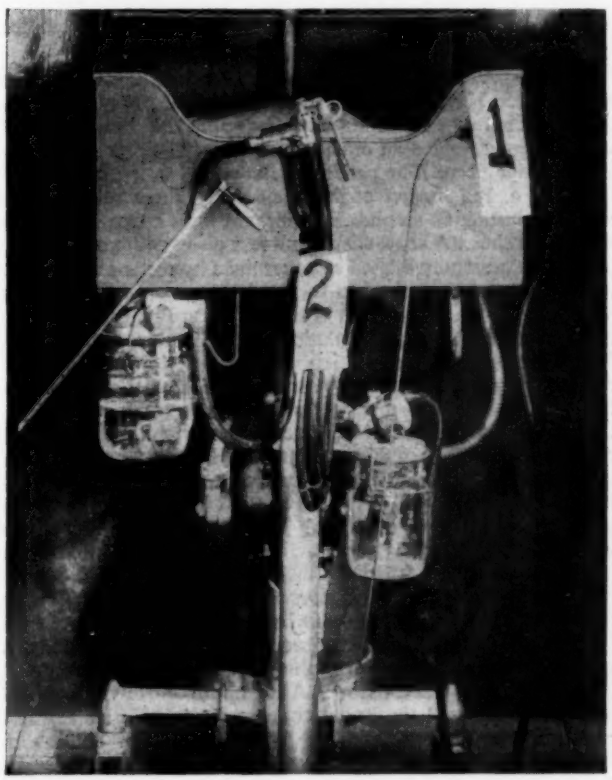

Fig. 2.—Kreiselman infant resuscitator: (1) Jackson aspirating tube connected to mechanical suction and (2) bronchoscope connected to positive pressure resuscitation inhaler.

CASE 2.—An 18-year-old nullipara, gravida 1, was admitted to the U. S. Naval Hospital, Charleston, S. C., on April 15, 1952, because of an excessive weight gain of 8½ lb. (3.8 kg.) in five days. The patient had been discharged from the hospital on April 10, 1952, following five days' hospitalization for reduction of an excessive weight gain. Total weight gain during pregnancy was 40 lb. (18.1 kg.). The patient informed the nurse at 11 p. m. on April 20, 1952, that she was having mild contractions. She was prepared for delivery, given an enema, and taken to the delivery room. Labor progressed until 7:30 p. m., April 21, 1952. At this time the patient was sent to the x-ray department for pelvimetry because of unsatisfactory progress of the labor. The pelvis had been considered adequate during pre-

natal workup. At 9:00 p. m. the fetal heart rate decreased to 110 beats per minute during each uterine contraction. The fetal heart rate had been between 136 and 150 during the labor. Vaginal examination was performed at 9:30 p. m. The cervix was found to be only 6 cm. dilated, and the fetal head was in an occipitoposterior position, 1 cm. below the interspinous line. Signs of fetal distress increased. The fetal heart rate now decreased to 90 beats per minute with each contraction. Escaping amniotic fluid was noted, and it was tinged with meconium. It was decided to perform a cesarean section because of an apparent cephalopelvic disproportion with increasing signs of fetal distress. A low flap-type cesarean section was performed under spinal anesthesia, supplemented with thiopental (pentothal®) sodium following the delivery. The baby cried spontaneously at birth. The vernix caseosa covering the infant was lemon-yellow in color. Routine gastric suction was performed with a no. 14 French urethral catheter. Seventy-five cubic centimeters of meconium-tinged amniotic fluid was aspirated from the infant's stomach. The infant laryngoscope was passed, and 5 cc. of a thick, tenacious material was aspirated from the trachea with a no. 9 French ureteral catheter. Mother and child were discharged from the hospital on April 29, 1952, in good condition.

CASE 3.—A 21-year-old Negro para 1, gravida 2, was admitted to the U. S. Naval Hospital, Charleston, S. C., May 18, 1952. The expected date of confinement was June 28, 1952. Physical examination revealed an outlet contraction. The prenatal course was not significant. The patient was admitted to the labor room at 12:30 a. m., having contractions every three minutes and each one lasting 60 seconds. Membranes were intact. There was no bloody show. A soapsuds enema was given with good results. The cervix was fully dilated as determined by rectal examination at 1:45 a. m. She was taken to the delivery room and given a saddle block anesthetic with 4 mg. of tetracaine (pontocaine®) hydrochloride in dextrose solution. At 2:09 a. m. a female infant was delivered from a left occiput anterior position with outlet forceps. The delivery was uncomplicated. Following delivery of the infant, manual examination revealed an unanticipated twin with a transverse presentation. Position was diagnosed as right scapuloanterior with left arm presenting in the vagina. An internal podalic version was performed. A second female infant was delivered at 2:16 a. m. The infant was in the third stage of asphyxia. The mouth and nasopharynx were aspirated. The larynx was visualized with a Jackson infant laryngoscope. A no. 9 French ureteral catheter was introduced into the trachea, and approximately 7 cc. of material were aspirated. The 3½ mm. Jackson bronchoscope was then passed through the laryngoscope, the bronchi were aspirated, and the positive pressure apparatus of the Kreiselman resuscitator was attached to the bronchoscope. After approximately five blasts of positive pressure the infant commenced to breathe. Positive pressure was stopped, and the infant was given continuous flow oxygen (four liters per minute) through the bronchoscope. In about five minutes the infant was no longer cyanotic. The bronchoscope was then removed, and the child was given continuous oxygen by means of a face mask. After several minutes the infant was taken to the nursery and placed in an incubator. The infant experienced no further respiratory difficulty.

COMMENT

It should be emphasized that any rough handling of the infant, such as swinging, rectal dilation, hot and cold baths, compression of the chest, and severe spanking, are to be condemned. The newborn should be handled with gentleness and care, since any unusual stress or trauma may incite shock.

The abnormality in the lungs of a newborn that has not breathed is complete atelectasis. Thorough aspiration of the tracheobronchial tree, followed by intermittent positive pressure maintains oxygenation of the infant's blood until the time when spontaneous respirations will fully expand the lungs. Positive pressure is also of value in inciting the Hering-Breuer reflex in the newborn. Cappe [5] states that research is now under way regarding the use of surface tension reducing agents to overcome atelectasis of the newborn.

In the opinion of the authors, the Jackson infant laryngoscope and bronchoscope are the best endotracheal instruments available for resuscitation. The Flagg intratracheal tube is a modification of the original Jackson bronchoscope and was developed by Dr. Flagg under the auspices of Dr. Chevalier Jackson. Dr. Flagg, who is undoubtedly one of the pioneers in the field of resuscitation, states, "Nothing is finer than the Jackson instrument."[6] Dr. Flagg also has summarized several important measurements of the infant larynx. When the glottic reflexes are present, a 2 mm. aspirating tube is passed with difficulty, while in the third stage of asphyxia, when the glottic reflexes are absent, the larynx will easily accept a 4 mm. tube.[6] These important measurements were the basis for the use by us of the no. 9 French ureteral catheter for suctioning the trachea in the first two stages of asphyxia and the use of the 3 or 3½ mm. bronchoscope for the third stage of asphyxia.

Listed below are the advantages of the Jackson bronchoscope over the usual rubber or plastic endotracheal tubes for resuscitating the newborn infant: 1. It is much easier to introduce a rigid, distally lighted bronchoscope in a direct straight line through a laryngoscope than to pass a plastic or rubber endotracheal tube from a lateral position. 2. With the distally lighted bronchoscope, the operator may be certain he is aspirating the right and/or the left main bronchus. 3. Crusts and mucus plugs may be removed easily by the use of appropriate Jackson forward grasping forceps introduced through the bronchoscope. 4. Strictures, masses, and congenital anomalies (see case 1) of the tracheobronchial tree can be diagnosed only with a bronchoscope. 5. The Jackson bronchoscope is the ideal instrument for dilating a web of the larynx. 6. A rigid bronchoscope is an ideal instrument for the temporary treatment of malacia of the trachea. "The side arm on the bronchoscope was originally designed for the inhalation of anesthesia. However, with the discontinuance of general anesthesia in our clinic, the side arm was left on the tubes for the inhalation of oxygen. We believe that this method, when combined with aspiration of obstructing secretions, is a very sound one."[7]

The Drinker respirator, as an initial method of resuscitation, is of no value; its efficacy depends on an intrapleural negative pressure that is nonexistent in the newborn; however, it is probably of value in resuscitating the depressed infant whose initial breathing is irregular or shallow. In the latter case, the Drinker respirator may be of value both for increasing respiratory excursion and returning circulating blood to the heart. The absence of negative intrapleural pressure in the infant who has never breathed is also the reason why the Shaefer and Sylvester methods of artificial respiration are of no value in asphyxia of the newborn.[8]

Cappe and Pallin [3] emphasize that positive pressure should be gradually applied and slowly increased. They believe that if the pressure within the respiratory tract is

5. Cappe, B. E.: Personal communication to the authors.
6. Flagg, P. J.: Treatment of Asphyxia of the New-born; Preliminary Report of Practical Application of Modern Scientific Methods, J. A. M. A. 91: 788-791 (Sept. 15) 1928.
7. Jackson, C. L.: Personal communication to the authors.
8. Cappe, B. E.: Personal communication to the authors.

gradually increased, no damage will occur to the pulmonary tissue. The positive pressure is administered at approximately 40 times per minute in an attempt to duplicate the normal respiratory rate of the newborn.

Drug stimulants such as epinephrine (adrenalin®), alpha-lobeline, caffeine and sodium benzoate, coramine® (a 25% solution of nikethamide), and pentylenetetrazol (metrazole®) have no place in the treatment of asphyxia in the newborn. The action of these drugs is unreliable, often causing a short excitement stage or even convulsion, followed by a period of severe depression.

Infants born by cesarean section should be treated as special problems of resuscitation. In addition to the usual methods of resuscitation outlined above,, the stomach contents of these infants are routinely aspirated with a no. 14 French urethral catheter. It is felt that the normal squeezing action of the mother's pelvis in a delivery from below empties the stomach. An infant delivered by cesarean section lacks this abdominal compression and may regurgitate, aspirating its own stomach contents.[9]

Dr. J. M. Brown [10] lists two valuable 20 minute rules in treating asphyxia of the newborn: 1. Resuscitating measures should be continued for 20 minutes for any infant who is born "dead" and is moderately macerated, if only for practice and instruction purposes. Many of these infants will recover with this regimen. 2. Any infant who shows no response to adequate measures for resuscitation after 20 minutes is probably suffering from intracranial damage as well.

The work of Eastman has established the superiority of oxygen over oxygen–carbon-dioxide mixtures in the treatment of asphyxia of the newborn. We prefer to use pure oxygen in the resuscitation of the newborn child.

CONCLUSIONS

The administration of 100% oxygen with positive pressure by mask or endotracheal tube is the treatment of choice in asphyxia neonatorum. The Jackson infant laryngoscope and bronchoscope are the ideal instruments for endotracheal administration of oxygen. It is essential for anyone practicing resuscitation of the newborn to learn laryngoscopy and bronchoscopic intubation. This can be accomplished easily with the Jackson instruments. The Flagg classification of asphyxia is the best outline for planning clinical treatment. Dr. Flagg emphasizes that if the glottic reflex is active the infant will promptly respond to oxygen therapy. If the reflex spasm of the glottis is absent, the infant is in the third stage of asphyxia, a stage in which flaccidity is present and the infant is dying.[11] We have found this classification most practical clinically.

SUMMARY

The present-day concept of the etiology, pathology, and classification of asphyxia in the newborn infant is reviewed. A plea is made for a return to the original Jackson laryngoscopic and bronchoscopic treatment of asphyxia in the newborn. Three cases are presented to illustrate this treatment of asphyxia.

9. Gellis, G. S.; White, P., and Pfeffer, W.: Gastric Suction: A Proposed Additional Technic for the Prevention of Asphyxia in Infants Delivered by Cesarean Section: Preliminary Report, New England J. Med. **240**: 533-537 (April 7) 1949.

10. Brown, J. M.: Personal communication to the authors. Dr. Brown is civilian consultant in anesthesiology, U. S. Naval Hospital, Charleston, S. C.

11. Flagg, P. J.: The Treatment of Postnatal Asphyxia, Am. J. Obst. & Gynec. **21**: 537-541 (April) 1931.

CLINICAL NOTES

TRICHINOSIS WITH LIVER DYSFUNCTION, HYPOALBUMINEMIA, AND TYPHOID AGGLUTININS

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Trichinosis appears to be one of the commonest and most important parasitic diseases in this country.[1] Routine postmortem examination of diaphragms, using the improved technique of the peptic digest method, has revealed the presence of Trichinella spiralis cysts in about 37%.[2] Infestation with this roundworm is commonly the result of ingestion of partially cooked or raw pork containing the encysted larvae, and the disease is endemic wherever pork is eaten. The diagnosis of trichinosis is obvious in the presence of a history of pork ingestion, edema of the eyelids, muscle pain, fever, nausea, vomiting, diarrhea, abdominal pain, and respiratory symptoms. Eosinophilia is probably the most valuable laboratory diagnostic aid, although it may fluctuate widely.[3] The widespread dissemination of the larvae [4] accounts for the common confusion of trichinosis with acute respiratory infection, acute nephritis, rheumatism, various gastrointestinal disorders, undulant fever, and tuberculosis. A mistaken diagnosis of primary heart disease is not unusual.[3b] Even typhoid may be suspected, as it was in other cases reported.[5]

There is no specific therapy for trichinosis, although corticotropin (ACTH) or cortisone may be useful in relieving symptoms and in diminishing tissue damage. The best therapy consists in adequate prophylaxis by means of thorough cooking of all pork meat, a half hour for each pound. The prognosis depends on the degree of infestation and on the localization of the disseminated larvae, since a heavy localization in such vital organs as the heart or brain is much more serious than the usually heavy localization in the skeletal muscles. A mortality rate averaging 10% has been reported in outbreaks of the disease.

REPORT OF A CASE

A 62-year-old white machinist was admitted to a hospital on Jan. 9, 1949, with a history of having been ill since Christmas Day, 1948, with a nonbloody diarrhea. Nine days after the onset, he was found by his physician to have a low grade fever and a few scattered rales in his chest; the patient also complained of a mild cough. Although the cough and diarrhea subsided somewhat with medication, the daily oral temperature persisted to 101 F and the patient received 300,000 units of penicillin in oil daily for four days without noting any effect on his fever.

The admission examination revealed some redness of the face and eyes, with questionable puffiness of the eyes. The abdomen was somewhat distended, and there was some question

Because of lack of space, some of the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

From the Department of Internal Medicine (Gastroenterology), Yale University School of Medicine, and the Medical Service of the New Haven Unit of the Grace-New Haven Community Hospital.

1. Hall, M. C., and Collins, B. J.: Studies on Trichinosis: I. The Incidence of Trichinosis as Indicated by Post-Mortem Examinations of 300 Diaphragms, Pub. Health Rep. **52**: 468-490 (April 16) 1937.

4c. Pund, E. R., and Mosteller, R.: Trichinosis: Demonstration of the Parasites in the Brain, J. A. M. A. **102**: 1220-1222 (April 14) 1934.

as to whether or not the liver was enlarged. Other than some tenderness in the calves, there were no other noteworthy findings on examination. Laboratory data included negative serologic findings and negative agglutinations for the enteric group. The urinalysis revealed a specific gravity of 1.028, 2+ albuminuria, a trace of sugar, and a rare red and white blood cell in the sediment. The blood studies revealed normal nonprotein nitrogen and blood sugar values, but the serum proteins were depressed, with a total of 3.5 gm. per 100 cc. on one occasion and 3.2 gm. per 100 cc. on another. Repeated differential counts showed from 30 to 59% eosinophils, with a total white blood cell count of 12,000 to 26,000; the red blood cell count dropped from 5,200,000, with the hemoglobin 103%, to 3,750,000, with the hemoglobin 75%.

The patient continued a febrile course with a temperature going to 102 F and 103 F. During his stay he was markedly anorexic, and efforts were made to maintain or elevate his serum protein level by infusions of protein hydrolysate and one infusion of 250 cc. of plasma. Eight days after admission edema of the left leg and ankle was noted. When repeated intradermal tests with Trichinella extract were negative and the patient failed to respond, he was transferred to the New Haven Hospital on Jan. 20, 1949. Further questioning revealed that about two days before the onset, the patient and his family had eaten boiled ham. However, none of the other members of the family had had any symptoms whatsoever. The patient noted that the watery nonbloody diarrhea consisted of about 12 movements per day and was associated with progressive weakness. On the second or third day of his diarrhea he had noted swelling and puffiness of his eyes with a good deal of conjunctival and scleral injection. The weakness and anorexia had persisted even after the diarrhea had ceased, but the patient had no muscle pains. A complete system review was otherwise entirely within normal limits.

Examination on admission revealed a temperature of 99.2 F, a pulse of 86, respirations 20, and blood pressure 138/80 mm. Hg. The patient seemed relatively well-developed and well-nourished, not acutely ill, and preferred to lie quietly in bed. Complete physical examination was not remarkable except for the following: The tongue was heavily coated. Examination of the heart revealed a grade 1 high pitched systolic murmur at the base, and a grade 2 systolic murmur at the apex without any other abnormal findings. At the extreme base of the right lung posteriorly there was slight dulness with diminished breath sounds and occasional fine moist rales; the left base posteriorly revealed constant fine crackling rales. Pneumonitis at both bases was confirmed by x-ray examination. A firm, nontender, sharp liver edge was felt 1 fingerbreadth below the right costal margin on deep inspiration, but the spleen was not felt. Both testicles seemed somewhat smaller than normal, and the rectal examination revealed a rather firm and large prostate about two to three times normal size. The right leg from the knee to the toes revealed a 2+ pitting edema and a rather tense and shiny skin, but without any redness, warmth, or tenderness.

The admission diagnosis was trichinosis with thrombophlebitis of the right leg veins, asymptomatic benign hypertrophy of the prostate, and testicular atrophy. Studies were undertaken in an effort to confirm the diagnosis. Blood smears on admission were not remarkable, with only 0 to 3% eosinophils and a total white blood cell count of 8,000 to 11,000; however, during the third and fourth week of his admission the white blood cell count rose to as high as 13,450 with 20 to 32% eosinophils (table 1). The urine was essentially within normal limits, with a specific gravity of 1.024 to 1.028, 1+ albuminuria, no sugar and only a rare to occasional white blood cell in the sediment. Repeated examination of the stool for occult blood revealed none. The admission red blood cell count of 3,090,000 with 10.5 gm. of hemoglobin per 100 cc. was raised by means of three transfusions, each consisting of 500 cc. of whole blood, to a level of over 4 million red blood cells with an average hemoglobin of 13 gm. Repeat serologic tests were again negative, but on repetition the enteric agglutinations on Jan. 31, 1949, and Feb. 7, 1949, were now positive for typhoid O and typhoid H in increasing titer as shown in table 2; however, repeated blood cultures, urine cultures, and stool cultures revealed no confirmatory evidence for typhoid. The patient had no history of typhoid or of prophylactic inoculations against typhoid.

The diagnosis could not be confirmed by Trichinella complement fixation tests or skin tests. Anorexia continued with a progressive weight loss amounting to a total of 20 lb. (9.1 kg.) during his hospitalization. The fever persisted ranging to levels of 102.2 F orally, and the patient's weakness became progressively worse. The moderate hypochromic anemia shown in table 1 continued in spite of several transfusions. The thrombophlebitis of the left leg remained unchanged, and the patient became generally edematous, with a persistent hypoalbuminemia as shown in table 3. The patient was maintained on bed rest with a high protein, high caloric diet and given symptomatic and supportive therapy. The general picture remained quite confusing and led to the consideration of other diagnoses such as gastric malignancy, abdominal lymphoma, or even generalized lymphomatosis in view of the anemia and the hypoalbuminemia; however, in explanation of the latter, malnutrition, renal disease, and liver disease were also considered. There seemed to be very definite evidence of liver disease as demonstrated by the liver function studies shown in table 4. There was no evidence of renal disease or blood dyscrasia. Gastrointestinal disease was adequately ruled out by careful and complete x-ray study of the gastrointestinal tract, including an oral cholecystogram.

TABLE 1.—*Blood Cell Counts*

Date	Red Blood Cells	Hemoglobin	White Blood Cells	Polymorphonuclear Neutrophils, % NS/S *	Lymphocytes, %	Monocytes, %	Eosinophils, %
Jan. 10	5,200,000	103%	26,000	10/25	6	..	59
Jan. 12	.....	.....	.....	10/29	7	..	54
Jan. 17	4,260,000	84%	18,500	47	16	..	37
Jan. 19	3,750,000	75%	12,000	17/43	10	..	30
Jan. 20	3,090,000	10.5 gm. per 100 cc.	10,900	11/75	10	4	0
Jan. 24	3,000,000	10.5 gm. per 100 cc.	8,050	4/77	14	2	3
Feb. 7	4,320,000	13.5 gm. per 100 cc.	13,450	3/66	9	2	20
Feb. 14	4,040,000	13 gm. per 100 cc.	12,700	44	21	3	32

* NS = nonsegmented nuclei; S = segmented nuclei.

An electrocardiogram on Jan. 21 revealed a QRS of 0.12 second, with abnormal slurring in all leads; the T wave was abnormally flat in lead 1 and probably abnormally low in V_6 (fig. 1*A*). An electrocardiogram on Jan. 31 revealed essentially the same findings, interpreted as indicative of left bundle branch block. An electrocardiogram on Feb. 12 was similarly interpreted and showed, in addition, abnormal depression of the S-T segments in leads 1 and V_4 (fig. 1*B*). However, the patient did not manifest at any time any evidence of congestive failure or any clinical cardiac dysfunction, and it was considered that the bilateral hydrothorax and anasarca were based on the hypoproteinemia.

The 10th day after admission the patient's temperature began to reach a height of 103 F, and at this time Staphylococcus hemolyticus was found in the blood culture. This raised the

question of septicemia, possibly based on a bacterial endocarditis, but a repeat blood culture two days later was negative; however, the patient was given 300,000 units of aqueous penicillin every three hours after his spiking fever persisted for four days. There was a prompt response within 24 hours, and the temperature fell to within normal levels where it remained until discharge, the penicillin being continued for a period of approximately 10 days. The patient had shown some symptomatic improvement prior to this acute episode, eating better, and with subsiding edema; he resumed his improvement following penicillin therapy.

Because of the absence of a satisfactory explanation of the entire picture, and the inability to establish a diagnosis of trichinosis, the patient finally gave permission for a biopsy of the right biceps muscle on Feb. 8, and this revealed numerous Trichinella larvae, which appeared as small encapsulated masses within the muscle; these little masses contained a moderately large amount of amorphous debris and, in most instances, several vacuoles, which in turn contained small laminated structures considered to be the larvae themselves (fig. 2). With this positive biopsy, the Trichinella antigen skin tests were repeated with a positive reaction.

Other than development of an erythematous maculopapular discrete and itching rash over the back and buttocks coincidentally with the beginning of penicillin therapy, which gradually crusted over and faded over a period of 10 days, the patient continued to improve, was essentially asymptomatic, felt well, and ate progressively better, with rising values for serum proteins, and gradual clearing of his generalized edema; by Feb. 16 the patient looked and felt entirely well without any edema or any rash. He was discharged on Feb. 19 to convalesce further at home. The abnormally high alkaline phosphatase noted in table 4 was further confirmed by a value of 26.7 King-Armstrong units on Feb. 17; the studies on March 15 following discharge showed the persistence of values at the upper limits of normal, with an acid phosphatase of 4.0 and an alkaline phosphatase of 13.4 King-Armstrong units and 6.75 Bodansky units. Blood cholesterol and fatty acids were studied with the following results: total cholesterol 95 mg. per 100 cc. (normal 150 to 250) with 35% free cholesterol (normal 24 to 32%); the fatty acids were 10.0 mEq. per liter, and the lipid phosphorus was 6.9 mg. per 100 cc., both levels being within normal limits.

TABLE 2.—*Results of Typhoid Agglutination Examinations**

Date	Antigen		1:20	1:40	1:80	1:160	1:320	1:640
Jan. 21	Typhoid	O	4+	4+	3+	2+	1+	±
		H	3+	3+	2+	1+	±	0
Feb. 7	Typhoid	O	3+	3+	4+	3+	2+	+
		H	3+	3+	4+	3+	2+	+

* Negative on Jan. 10, 1949.

TABLE 3.—*Serum Protein Studies*

Date	Nonprotein Nitrogen, Mg. per 100 Cc.	Serum Proteins, Gm. per 100 Cc.	Albumin, Gm. per 100 Cc.	Globulin, Gm. per 100 Cc.
Jan. 20	32	4.19	1.30	2.89
Feb. 7	30	5.53	1.96	3.57
Feb. 17	30	5.86	2.16	3.70
March 15	33	7.02	2.13	4.89

TABLE 4.—*Liver Function Studies*

Date	Serum Bilirubin at 1 Minute, Mg. per 100 Cc.	Serum Bilirubin After 30 Minutes, Mg. per 100 Cc.	Cephalin Flocculation	Thymol Turbidity, Units	Thymol Flocculation	Retention of Bromsulphalein in Blood After 45 Minutes, %	Alkaline Phosphatase, Bodansky Units
Jan. 24	0.34	1.29	3+ to 4+	10	3+	8.1	.....
Feb. 14	0.26	0.55	3+ to 4+	10.5	3+	12.0	12.49
March 15	0.13	0.77	3+ to 4+	9.5	3+	...	6.75

Following discharge, the patient continued to improve, eating very well with a 6 lb. (2.7 kg.) weight gain, and stating that he felt fine. He was seen on March 15, at which time the serum proteins, liver function studies, and phosphatase studies noted in the tables were done. He continued to feel fine and to gain weight until June 1, when acute urinary retention developed; he was at that time admitted to another hospital and had a transurethral prostatic resection. He recovered uneventfully and was home within a week. Although microscopic section of prostatic tissue had been interpreted as showing benign hypertrophy, the entire episode of prostatic disease raised the question of malignancy, in view of the previously unexplained abnormal phosphatase values. A request was therefore made that the prostatic sections be restudied, and this confirmed the suspicion of an adenocarcinoma of the prostate. The patient then had a bilateral orchiectomy. He was also treated with diethylstilbestrol.

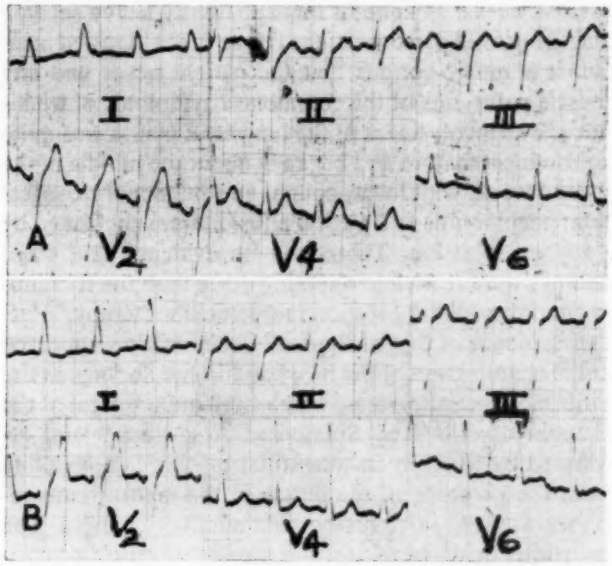

Fig. 1.—Electrocardiogram of patient with trichinosis combined with liver dysfunction, hypoalbuminemia, and typhoid agglutinins. *A*, results on Jan. 21 showed slurred QRS complexes of 0.12 second, flat T wave in lead 1, and low T wave in lead V_6. *B*, results on Feb. 12 showed an added finding of abnormal depression of S-T segments in leads 1 and V_6.

The patient continued to feel perfectly well with continued weight gain and no further urinary symptoms until the beginning of 1950. At that time there was noted clear-cut evidence of carcinomatosis from his primary adenocarcinoma of the prostate. His course was progressively downhill until his death in June, 1950.

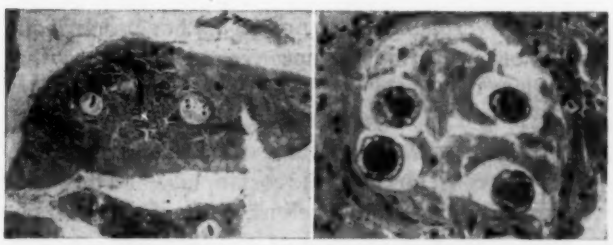

Fig. 2.—Biopsy sections of right biceps muscle showing encapsulated masses of Trichinella larvae (figure on left side enlarged × 21 and figure on right side × 217).

COMMENT

This carefully studied and proved case of trichinosis presented many interesting features and problems. The patient had the usual incubation period of about 2 days for single cases,[8a] together with a fairly characteristic 10 day period of duodenitis and jejunitis manifested chiefly by nonbloody diarrhea. Dissemination presumably oc-

curred fairly rapidly, as evidenced by the eye edema and conjunctival injection that occurred on the second day of the diarrhea or the fourth day after ingestion of the boiled ham. In addition, there was evidence of widespread dissemination and heavy infestation. A rather marked and progressive weakness and anorexia were present practically from the very onset of the disease and persisted for several weeks. In spite of this apparently heavy seeding and the proved presence of the larvae in the biopsied muscle, it is rather curious that the patient never had any muscle pains, one of the commonest symptoms of trichinosis. The involvement of the lungs and pleura was quite a prominent feature and began at about the middle of the second week, with fever, cough, and pulmonary congestion; pneumonitis and pleural effusion were confirmed by x-ray examination. There was no evidence that these findings were related to anything other than the trichinosis, and they did not respond to penicillin therapy.[6] Further evidence of this widespread dissemination appeared in the examination of the heart and in the findings in the serial electrocardiograms, which were quite typical of the changes described by Spink and Augustine [3b] and attributed by them to an interstitial myocarditis resulting from the presence of the larvae in the myocardium together with the surrounding inflammatory changes. The only other evidence of vascular disease was the thrombophlebitis of the left leg, which occurred in the fourth week after the onset; this finding is not at all unusual in trichinosis.

The tendency of the characteristic eosinophilia to fluctuate widely, as noted in table 1, may have its explanation in Spink's [7] finding that the eosinophilia disappeared with the onset of secondary pyogenic infection, to reappear later when the secondary infection subsided. There was some evidence of a septic complication, perhaps a bacteremia due to the Staph. hemolyticus found in the blood culture of Jan. 31. The fact that the eosinophil level fell to 0 to 3% at the end of the fourth week was also thought to indicate a rather grave prognosis.

Although the behavior of the Trichinella antigen skin tests were interesting in connection with the development of antibodies, the typhoid agglutinations were even more striking and at the same time confusing. Since the patient had never had a history of typhoid or prophylactic inoculations, the initially negative agglutinations that were followed by the later positive ones, in increasing titer as shown in table 2, raised the question of typhoid, particularly in view of the course of the illness, the fever, and the skin rash; however, the eosinophilia and the negative blood, urine, and stool cultures for typhoid ruled out the latter, and investigation of the literature revealed the previous reports of the presence of typhoid agglutinins in trichinosis.[5]

The hypoproteinemia in this case (table 3) has been previously described in trichinosis by Hanes [8] who attributed it, undoubtedly correctly, to the starvation resulting from the gastrointestinal symptoms in his case. He also felt that the generalized anasarca present in his case, as in the case reported here, was entirely due to the hypoproteinemia and not to any heart or kidney disease. It is quite obvious that the hypoproteinemia was almost entirely due to the fall in serum albumin whereas the serum globulin was normal, or even elevated. This phenomenon is readily explained by the investigations of Elman and Heifetz [9] who found that the serum protein in adult dogs on a low protein diet fell progressively, entirely in the albumin fraction. They felt that the hypoalbuminemia of protein starvation could be traced in large measure to the failure of liver function, and their findings are particularly interesting in relation to the case reported here. The liver function studies in table 4 are definitely abnormal; although the serum bilirubin determinations are only just above the upper limits of normal initially and fall progressively to quite normal values, the cephalin and thymol flocculations and the thymol turbidity remain abnormal throughout. It is quite probable that impairment of liver function in this case by heavy seeding of the liver with Trichinella larvae, with associated surrounding inflammatory change, played an important role, as it has been demonstrated that the larvae can be found in the liver.[4b] The elevated serum globulin certainly suggests liver damage. Homologous serum hepatitis was unlikely in view of the time element.

The only previous study in which the liver function is mentioned is that of Dammin [5a] who reported a normal serum phosphatase of 3 Bodansky units per 100 cc. in his case. The abnormal phosphatase values in this case were not clearly understood until urinary retention developed and the patient underwent a transurethral prostatic resection; it was then felt that a carcinoma of the prostate might well be present, explaining the abnormal values, and this was subsequently confirmed. The abnormally low total blood cholesterol was undoubtedly due to the patient's starvation, since Wendt [10] demonstrated a gradual fall in blood cholesterol, during the course of a long period of starvation, to levels below normal. Pierce and his co-workers [11] found the cholesterol values in trichinosis fall within the normal range until the fifth week of the disease, when they tend to be below normal.

SUMMARY AND CONCLUSIONS

A carefully studied case of trichinosis, proved by muscle biopsy, is presented. There was evidence of widespread dissemination of the disease with involvement of the lungs, the heart, and the liver, in addition to the involvement of the skeletal muscle, the eyes, and the gastrointestinal tract. In addition to serial studies of the blood cell count, the serum proteins, and the typhoid agglutinations, apparently new and previously unreported data on the liver function in trichinosis are also reported.

Trichinosis is a very prevalent and serious disease and must be considered in the differential diagnosis of many disorders; it should replace syphilis as the great mimic. Trichinosis must be particularly considered in gastrointestinal disorders with nausea, vomiting, diarrhea, and abdominal pain, with or without muscle pains; it may produce liver dysfunction.

The hypoalbuminemia of trichinosis may be due to a combination of liver dysfunction and protein deficiency and should be treated vigorously.

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MECONIUM ILEUS

REPORT OF A CASE WITH SUCCESSFUL MANAGEMENT

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Meconium ileus and its association with pancreatic cystic fibrosis was first described in 1905. A review of the literature indicates there are now four reported survivors among persons with this disease.[1] Prior to 1948, the disease was uniformly fatal. To the present list of four survivors, I would like to add a fifth whose case has been managed successfully to date. Landsteiner,[1a] in reporting the first case, suggested that the abnormal meconium was the primary factor in the disease and that the changes in the pancreas were the result of the intestinal obstruction. It is now believed that he had mistaken the cause for the effect. Sidney Farber,[2] as the result of an extensive study, concluded that the changes in the pancreas were primary and that the abnormal meconium was the result of a lack of digestion of meconium by pancreatic secretions. Farber [3] reproduced fibrocystic disease in kittens with repeated injections of pilocarpine and suggested that there is a disturbance in parasympathetic innervation or an autonomic imbalance in the nervous control of secretions in the pancreas and mucous glands. The absence of myenteric plexuses has been demonstrated in the ileums of patients in recently reported cases,[4] but this may be one of the numerous congenital anomalies that may accompany meconium ileus. In the case that I am reporting, plexuses and ganglions were easily seen in microscopic sections of both the collapsed and distended portions of the removed bowel wall. The theory that the complete syndrome, including the changes in the bronchi and the mucin-producing glands, is the result of a generalized congenital defect does not appear to be adequately substantiated. Certainly the abnormality of the pancreatic secretion is the principal lesion. This can be easily demonstrated and diagnosed by the absence or diminution of trypsin, as shown by the gelatin-film test. The clinical picture and the diagnostic points are described in the following report of a case of a severe form of meconium ileus, in which the patient has survived in good health for more than a year.

REPORT OF A CASE

A 7 lb. (3,175 gm.) boy was born June 23, 1951. There was no familial history of pancreatic cystic fibrosis. Within 24 hours, the baby showed considerable abdominal distention and vomited his first feeding. Examination showed the rectum to be patent. There was a sausage-shaped hard mass palpable in the lower abdomen, with tympanic distention from the umbilicus to the ribs. A flat roentgenogram of the abdomen showed the lungs to be clear and the upper abdomen to be filled with huge loops of gas-filled bowel. Neuhauser's sign [5] was not discernible.

When the patient was 36 hours old the abdomen was opened, a preoperative diagnosis of small bowel obstruction probably due to meconium ileus having been made. Examination showed the entire colon to be collapsed and the terminal ileum to be ribbon-like for a length of 36 cm. At 36 cm. from the cecum there began a huge distention of the ileum, the lumen of which was filled with a hard, rubbery, meconium mass. The wall of this distended ileum was plum-colored, and in one amesenteric portion there was a perforation in the wall of the bowel. Apparently no gas or meconium had escaped, because of the putty-like consistency of the mass within the lumen. At this level, the mass extended cephalad for about 12 cm., and then the distention increased, and the bowel seemed to be filled with gas and fluid at this level and above. It seemed necessary to resect a segment 101 cm. in length to complete an anastomosis; however, so much difficulty was encountered in trying to dilate the cecum with instillations of sodium chloride solution through a no. 14 catheter that the attempt to anastomose the colon with the huge dilated jejunum was finally abandoned. The catheter was sutured into the colon and the wound was closed, exteriorizing the end of the jejunum together with the end of the colon. At the close of the operation, 10 cc. of 5% pancreatin solution was instilled through the catheter into the colon (fig. 1). A gelatin-film test for trypsin activity done on sample specimens of the meconium removed failed to reveal trypsin activity. The patient did poorly and lost weight but passed soft meconium stools through the rectum. It was then possible to irrigate the colon completely in a retrograde fashion with sodium chloride enemas.

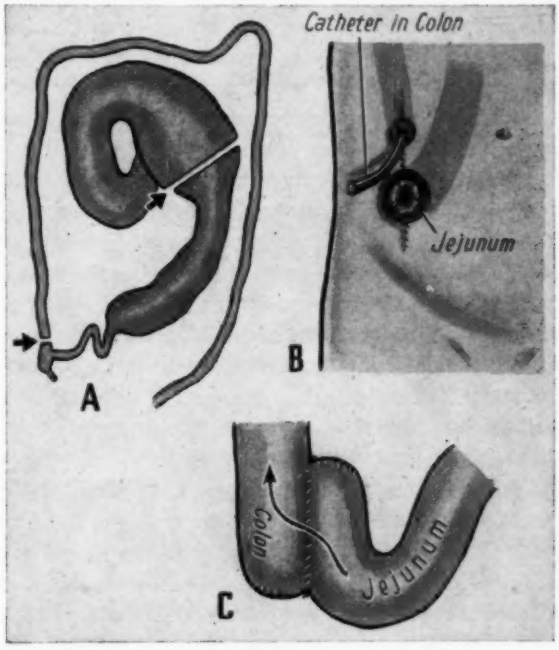

Fig. 1.—*A*, Segment of bowel (between arrows) resected at the first operation 36 hours after birth. *B*, exteriorized ends of bowel prior to anastomosis. *C*, completed anastomosis.

On June 29, 1951, when the patient was 6 days old, he was returned to the operating room, and a side-to-side jejunocolic anastomosis was made, using a single layer of 00000 silk. The patient had been receiving 1 gm. of pancreatin three times a day since his first feeding. Administration of this drug was continued together with a fat-poor diet, casein hydrolysates, and concentrated fat soluble vitamins. The patient was dismissed

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2. Farber, S.: Relation of Pancreatic Achylia to Meconium Ileus, J. Pediat. **24**: 387, 1944.

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5. Neuhauser, E. B. D.: Roentgen Changes Associated with Pancreatic Insufficiency in Early Life, Radiology **46**: 319, 1946.

from the hospital on July 26, 1951, still occasionally having loose stools. The diarrhea has since subsided, and the patient's progress, although slightly retarded, is entirely satisfactory. Chest roentgenograms have been made every two months, and the most recent one at the time of writing, made April 1, 1952, showed the chest to be entirely normal.

COMMENT

Neuhauser [5] has described the roentgenographic sign of air bubbles in the inspissated meconium, which are diagnostic and which have occurred in 4 of 10 cases in his series, in 3 of 8 cases in Hiatt and Wilson's series and in at least 4 in my series. Preoperative use of radiopaque enemas has been recommended but has proved dangerous and seems to me to have more disadvantages than advantages.

Two points are pertinent to successful surgical management of meconium ileus: 1. The first concerns the techniques used to obviate the necessity of removing the colon. Hiatt and Wilson [1d] have reported a successful technique (fig. 2 and 3), which could not be used in my case because of the gangrenous wall of the ileum. A purse string suture is placed just proximal to the atrophied terminal segment of ileum where the gut becomes dilated. An incision 1 cm. long is made into the lumen, and a small catheter is inserted as far as possible toward the ileocecal valve. The suture is tightened, and the terminal ileum is dilated with sodium chloride solution. When considerable pressure has been obtained, the suture is loosened, and the fluid and chunks of meconium are allowed to escape into a basin. This is repeated until all of the meconium has been removed. Pancreatin solution can be instilled just before the catheter is removed, and the stoma is then closed with the suture. 2. I believe that the resection of any questionably viable intestine is a point of the greatest importance. Some past deaths undoubtedly have resulted from failure to resect unviable intestine. The demands on the intestinal wall during the postoperative period in propelling meconium through a collapsed terminal ileum and colon require that all devitalized gut be resected. If a loop with poor peristaltic power is left in place it will probably rupture.

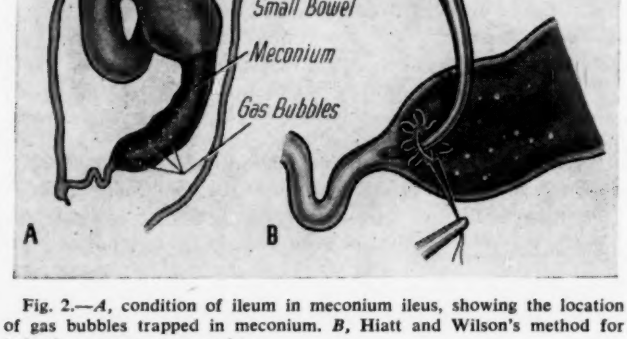

Fig. 2.—*A*, condition of ileum in meconium ileus, showing the location of gas bubbles trapped in meconium. *B*, Hiatt and Wilson's method for irrigation to remove meconium.

The postoperative medical management is of great importance. Just as the diabetic patient requires insulin replacement for the rest of his life, so the patient with pancreatic fibrosis requires trypsin replacement. Fortunately, this can be given by mouth, and the infant should immediately begin receiving 0.5 gm. of trypsin in each bottle. Older patients should receive 1 gm. per meal. A high vitamin intake, especially vitamin A, is essential.

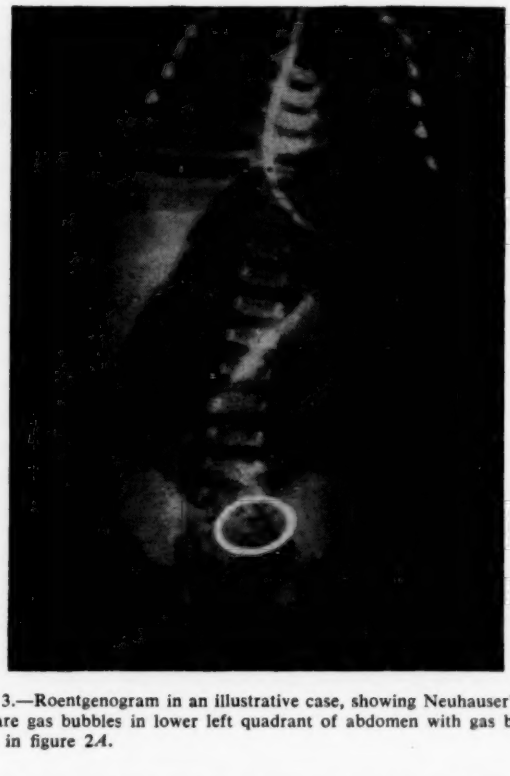

Fig. 3.—Roentgenogram in an illustrative case, showing Neuhauser's sign. Compare gas bubbles in lower left quadrant of abdomen with gas bubbles shown in figure 2*A*.

Fats and proteins are difficult to assimilate and must be avoided. A diet high in hydrolyzed proteins serves well for energy and growth. Early treatment of intercurrent infections is important. The chest must be vigilantly watched with roentgenograms for the appearance of pulmonary complications. It is the opinion of Andersen and associates [6] that the pulmonary complications as well as the other mucin structure changes occurring with fibrocystic disease are probably the result of the prolonged nutritional disturbances rather than the result of a generalized congenital disease. In support of her contention is the fact that these generalized changes are found at necropsy only in patients with milder cases who have survived the condition for several months or a few years.

SUMMARY

The literature on meconium ileus associated with fibrocystic disease of the pancreas is reviewed. The micropathology, etiology, and diagnosis are discussed. A method of relieving the obstruction by washing the meconium out through an ileotomy is described. The importance of resecting the bowel when indicated is stressed. The postoperative medical management is outlined.

904 Hume Mansur Bldg.

6. Andersen, D. H.: Therapy and Prognosis of Fibrocystic Disease of Pancreas, Pediatrics **3**: 406, 1949.

PRESUMPTIVE AMNIOTIC FLUID INFUSION WITH RESULTANT POSTPARTUM HEMORRHAGE DUE TO AFIBRINOGENEMIA

REPORT OF A CASE

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Deaths due to hemorrhage in obstetrics appear to differ on occasion from deaths due to blood loss seen in association with medical or surgical conditions. For many years discerning clinicians have commented that in certain circumstances, more particularly in premature separation of the placenta, the blood appeared not to clot adequately, resulting in faulty uterine hemostasis. The blood was described as behaving in a fashion similar to that seen in hemophilia or following the introduction of snake venom into the blood stream.[1]

Personal experience with a patient who died of uncontrolled uterine hemorrhage with hematemesis and hemoptysis associated with amniotic fluid embolism raised the question as to whether amniotic fluid might contain a substance that would alter the clotting mechanism. A review of the literature revealed the significant fact that patients with amniotic fluid embolism who survived their initial anaphylactic shock often died a few hours later from postpartum hemorrhage.[2] Further, in the cases of amniotic fluid embolism in which autopsy has been done, the absence of any terminal clotting has been a universal finding.[2b]

It was subsequently demonstrated that uncontaminated amniotic fluid collected during labor contained a coagulant that behaved like thromboplastin in its effect on oxalated plasma and had the ability to reduce the clotting time of hemophiliac blood from 54 minutes to 4 minutes. Amniotic fluid could be substituted for commercial thromboplastin qualitatively in the one stage prothrombin test.[3] Further tests showed that amniotic fluid did not contain fibrinogen, thrombin, prothrombin accelerators, heparin, or fibrinolytic activity.[3] On the basis of these observations, it was suggested that thromboplastic material in amniotic fluid might gain entrance into the systemic circulation, the passage being expedited by vigorous uterine contractions. It was first postulated by the writers that amniotic fluid, as it gained entrance into the systemic circulation, would defibrinate the blood and cause a fatal uterine hemorrhage.[2a] Such a postulate was in keeping with the long-established observation that a nearly pure preparation of thromboplastin, when slowly infused intravenously into dogs and cats, causes defibrination of the blood.[4]

The afibrinogenemic state has also been observed in the severe form of premature separation of the placenta [5] and in the occasional case of Rh-negative patients when the fetus died of blood incompatability and was retained thereafter in utero for several weeks.[6] In the latter instance, afibrinogenemia was not interpreted as being related to the Rh factor but rather as a consequence of the retention of the autolyzed products of conception with release of thromboplastic substance. It has long been known that the placenta has strong thromboplastic activity, and in 1945 Chargaff demonstrated that the amount is comparable to that recovered from lung tissue.[7] This has been confirmed, and it has been shown that the decidua is especially rich in thromboplastic activity.[5d] In both conditions mentioned above, a similar mechanism was evoked to explain the failure of normal coagulation, namely the escape of thromboplastic material from the uterus, with subsequent defibrination.[8] An afibrinogenemic state associated with the conditions mentioned above is not infrequent in obstetric practice, as is substantiated by further observations.[9] Moreover, in amniotic fluid infusion (embolism), postpartum hemorrhage may be a more frequent cause of death than has been previously appreciated.[9b]

A carefully studied fatal case of amniotic fluid embolism has recently been reported that confirms the postulate that this syndrome is a defibrinating disease.[10] The patient died of postpartum hemorrhage with recognized antemortem fibrinogen depletion. At autopsy unequivocal evidence of amniotic fluid embolism was found. It is important to note that, in spite of 16 transfusions and a supracervical hysterectomy, the patient died of hemorrhage and shock.[10]

The present communication is concerned with what we believe to be the first recognized case of amniotic fluid infusion with fibrinogen levels markedly below the minimal requirements for clotting (100 to 150 mg. per 100 cc.) in which the patient survived following definitive replacement therapy. This was achieved by the use of fibrinogen (Cohn's fraction 1) and whole blood.

REPORT OF A CASE

The patient, a 25-year-old woman, gravida 2, para 1, with an expected date of confinement of Dec. 12, 1952, was admitted to the Boston Lying-In Hospital at 10:30 p. m., Nov. 24, 1952, with a history of ruptured membranes of four hours' duration. The prenatal course had been uncomplicated, and on admission the results of the physical and obstetrical examinations were normal.

This study was supported in part by a grant from the Charles H. Hood Foundation.

From the Department of Obstetrics, Harvard Medical School and the Boston Lying-In Hospital.

Owing to lack of space, some of the bibliographic references have been omitted and will be included in the authors' reprints.

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4*c*. Ratnoff, O. D., and Conley, C. L.: Studies on Afibrinogenemia: The Defibrinating Effect on Dog Blood of Intravenous Injection of Thromboplastic Material, Bull. Johns Hopkins Hosp. **88**: 414, 1951.

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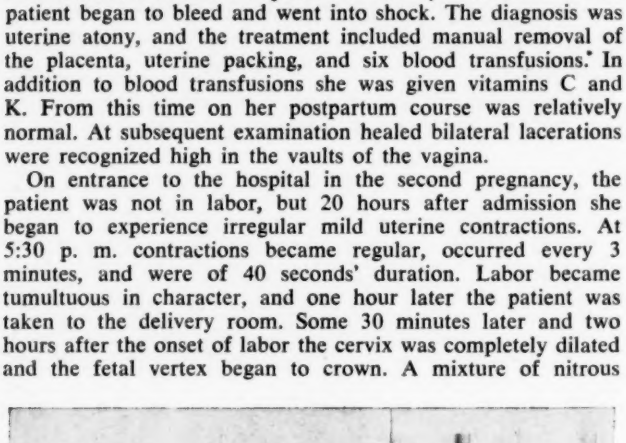
The past medical history is of interest, and the patient's obstetrical history is of significance. The patient has been known to be an epileptic with petit mal beginning in early childhood, for which she received sporadic treatment up to 1945. Since that time apparently no further attacks have occurred, and it is definitely known that she has not received any anticonvulsive therapy for the past year.

Her obstetrical history reveals that in 1949 she was delivered of a 2,750 gm. infant by breech extraction, complicated by postpartum hemorrhage. Following delivery there was a delay in the detachment of the placenta. Twenty minutes later the patient began to bleed and went into shock. The diagnosis was uterine atony, and the treatment included manual removal of the placenta, uterine packing, and six blood transfusions. In addition to blood transfusions she was given vitamins C and K. From this time on her postpartum course was relatively normal. At subsequent examination healed bilateral lacerations were recognized high in the vaults of the vagina.

On entrance to the hospital in the second pregnancy, the patient was not in labor, but 20 hours after admission she began to experience irregular mild uterine contractions. At 5:30 p. m. contractions became regular, occurred every 3 minutes, and were of 40 seconds' duration. Labor became tumultuous in character, and one hour later the patient was taken to the delivery room. Some 30 minutes later and two hours after the onset of labor the cervix was completely dilated and the fetal vertex began to crown. A mixture of nitrous



Venous blood samples before and during the treatment of afibrinogenemia. The first tube contains blood taken at 8:57 p.m., before therapy was begun, with the plasma fibrinogen level 24 mg. per 100 cc.; the second, at 10 p.m., with 192 mg.; the third, at 11:35 p.m., with 240 mg.; the fourth, at 1 a.m., with 492 mg.; and the fifth, at 8 a.m., with 524 mg. The clot in both tubes 2 and 3 is small and shows evidence of dissolution regardless of the normal values for blood fibrinogen. This is presumptive evidence of the presence of a fibrinolytic enzyme.

oxide and oxygen supplemented by a small amount of ether was administered. Just previous to delivery the anesthetist was aware that the patient's respirations had suddenly increased to an estimated 60 per minute and the blood pressure, which was 95/55 at the onset of labor, dropped to 55/?. The pulse rose to 160, became thready, and was barely perceptible at the wrist. The anesthesia was discontinued, and at this time blood was seen to ooze from the patient's nostrils and angles of the mouth. This transient phenomenon was not traumatic in origin, for at no time was an airway or any other mechanical device used in the administration of the anesthetic. An outlet forcep operation was quickly performed with the aid of a median episiotomy. At 7:39 p. m. a normal baby boy weighing 3,065 gm., who cried vigorously, was delivered. The placenta showed none of the usual signs of separation, and in the absence of bleeding it was elected to leave the organ in situ and to suture the episiotomy. Respirations improved somewhat, but the pulse remained unobtainable at the wrist and the blood pressure was questioned. Before evidence of bleeding was at hand, the patient was given epinephrine to combat the shock. Midway in the repair of the episiotomy and 12 minutes after delivery, the placenta was delivered intact (7:51 p. m.). The placenta was reported to be both grossly and histologically normal. The uterus was firm, small, and well contracted; up to this time the blood loss had been less than average. The patient's condition remained unchanged, although near the end of the delivery the uterus relaxed somewhat but responded to gentle massage. In view of the unexplained shock and in the presence of a rapid labor, however, a speculum examination was performed. There were no lacerations of the vagina, and the cervix also appeared intact on inspection.

Venoclysis was started because of the presence of a sustained drop in blood pressure. At this time (8:30 p. m.) blood was drawn for cross matching, and it was soon remarked that the blood samples did not clot. Another sample was obtained, and it also revealed no clot formation. During the interval between taking of the two blood samples, the patient began to show evidence of serious vaginal bleeding.

The respirations continued to be rapid, blood pressure was unobtainable, and the patient soon became unresponsive. No evidence of clotting was found in a freshly drawn venous sample taken at this time. Veins were exposed and cannulated in the right arm and right ankle, and by 8:45 p. m. blood and fibrinogen were administered simultaneously and additional oxytocics were given. By 10 p. m. the patient had received 6 gm. of fibrinogen and three units of blood. For the first time a tiny clot appeared in the test tube of blood from the antecubital vein (figure). The patient bled steadily per vagina, and over the next one and a half hours the blood loss was estimated to be 1,500 to 2,000 cc. From the onset of the bleeding, uterine packing was strongly considered, but it was thought the procedure would only add to the patient's shock and prove futile as a therapeutic measure in the presence of a deficient clotting mechanism. The oxalated samples taken before the administration of fibrinogen revealed in the first a complete afibrinogenemia (8:30 p. m.) and the second sample contained 24 mg. per 100 cc. of fibrinogen (8:57 p. m.).

In the next one and a half hour period (10 to 11:30 p. m.), the vaginal bleeding became minimal and the blood pressure stabilized at 90 to 110 systolic and 60 to 80 diastolic. Over this period of time the patient received further therapy consisting of 6 gm. of fibrinogen and three units of blood. The pulse returned to 108 to 120 beats per minute, but the uterine tone remained of poor quality. The blood fibrinogen level had now risen to 240 mg. per 100 cc. While the freshly drawn venous blood formed a sizable clot in 4 minutes at room temperature, there was evidence of scalloping and fragmentation by 30 to 45 minutes. The clot, while of normal size, originally was considered to be an unstable one, and this was interpreted as strong presumptive evidence of a circulating fibrinolysin. From 11:30 p. m. to 12:30 a. m. the bleeding recurred, and the patient's blood loss for this period was estimated to be between 400 to 600 cc. Hysterectomy was strongly considered at this time. As a preliminary to operation, 6 gm. of additional fibrinogen were quickly administered in conjunction with the seventh unit of blood. The blood per vagina showed the first evidence of clotting. The bleeding ceased over the next two hours, and the vaginal discharge resembled normal lochia except for the expulsion of a sizable clot. A blood sample taken at 1 a. m. revealed a blood fibrinogen level of 492 mg. per 100 cc. When the patient was receiving her eighth transfusion, a chill developed accompanied by hyperpyrexia and her temperature rose to 103.6 F and her pulse to 160. The urine output from the time of delivery and up to 1 a. m. had been approximately 500 cc., but within the 12 hours after delivery the patient became anuric. The fibrinogen concentration at 8 a. m. the following morning was 524 mg. per 100 cc. and remained at a similar level in the last sample taken in the late afternoon. The patient's blood type was group O, Rh positive, and the blood administered was group O, Rh positive, with Witebsky's substance added to neutralize the A and B factors.

During the acute period of postpartum hemorrhage, extending over a six hour period, the patient received 3,500 cc. of whole blood and approximately 16 to 18 gm. of fibrinogen in 2,000 cc. of 5% dextrose in water. Calcium gluconate was administered on empirical grounds because of the large amount of sodium citrate the patient had received. The following day and some 72 hours thereafter, the patient complained bitterly of pain in the arms and legs and exhibited carpopedal spasm.

Electrocardiograms were normal, and blood calcium levels were normal. Anuria continued, and evidence of mild potassium intoxication was observed in the electrocardiogram. The renal failure was believed to be due to an ischemuric episode associated with postpartum hemorrhage.[11] On the fifth postpartum day the patient was transferred to Dr. John Merrill's service at the Peter Bent Brigham Hospital for the treatment of anuria by the use of the artificial kidney. The pelvic examination at this time revealed a well-involuting uterus, and there were no lacerations of the cervix or vagina. The broad ligaments were negative, and no hematomas or exudate were found in the pelvis.

The patient remained in a state of extreme oliguria for 11 days, with a daily urinary output of 90 to 350 cc. Spontaneous diuresis occurred on or about the 12th postpartum day. The patient, however, continued to vomit, and her nutritional state deteriorated. In spite of an adequate urinary output (1,500 cc. per 24 hours), the blood urea nitrogen remained above 200 mg. per 100 cc. Because of the lack of clinical improvement and approximately one month after delivery, the patient was treated by dialysis with the artificial kidney, a procedure which required heparinization. Within an hour following dialysis, brisk uterine hemorrhage occurred, which had the appearance of arterial bleeding. There was an associated prolonged clotting time, while the blood fibrinogen levels were normal. The bleeding was immediately controlled by the prompt administration of protamine. The blood urea nitrogen fell to 127 mg. per 100 cc., and vomiting ceased following dialysis. A gratifying improvement ensued following the ability of the patient to retain oral feedings. The blood urea nitrogen returned to 14 mg. per 100 cc., and the patient was discharged well two months after delivery. The patient is to be followed for evidence of permanent renal damage and signs of a possible Sheehan's syndrome (necrosis of anterior lobe of the pituitary) as the result of the prolonged hemorrhagic shock.

COMMENT

The syndrome of amniotic fluid embolism originally described by Steiner and Lushbaugh was proposed by them to constitute the chief cause of sudden death in labor or immediately following delivery.[12] Death was considered to be due to anaphylactic shock combined with a mechanical blockage of the pulmonary arterioles from the debris of amniotic fluid.

There has been a reluctance to accept this syndrome as a definite entity for a variety of reasons. First, because death is regarded as inevitable and it has become a convient diagnosis for unexplained sudden death in obstetrics. Therefore, the diagnosis of amniotic fluid embolism has often been made when in fact faulty anesthesia or cardiac arrest was responsible. Second, anaphylactic shock occurring during a normal physiological process such as labor is difficult to comprehend. Finally, the degree of mechanical blockage in the lungs by amniotic debris seen at postmortem examination and described in the original case reports seemed insufficient to explain death from embolism.

The sequential changes that occur in this syndrome are understandable, however, when one considers that amniotic fluid has marked thromboplastic activity. The fluid as it migrates from the amniotic cavity into the systemic circulation undoubtedly acquires additional activity from its contact with the surrounding decidua. The autoinfusion of this amniotic fluid into the blood stream will effect a defibrination of the blood similar to that seen when thromboplastin is slowly infused into the experimental animal. Assuming this comparison to be valid, it is obvious that the term amniotic fluid embolism is hardly descriptive, but rather the syndrome might better be referred to as "amniotic fluid infusion." Such a term would denote more clearly the resultant physiological effect and avoid the connotation that death is due entirely to the mechanical blockage of the pulmonary arteries by amniotic debris. Presumably the amount of amniotic fluid and the rate at which it enters the systemic circulation will determine the eventual clinical outcome. When large amounts rapidly enter the blood stream, the resultant extensive intravascular coagulation will lead to sudden death. Should the amount of amniotic fluid and the rate of autoinfusion be less, the patient may survive the initial shock-like state only to die of postpartum hemorrhage as a result of defibrination.

The tendency toward clot dissolutions was particularly prominent in this patient. The observed clot fragmentation at the time when the circulating fibrinogen had been restored to normal limits would indicate the presence of a fibrinolysin. The appearance of a fibrinolytic enzyme concomitant with shock and tissue destruction has been amply demonstrated, but the meaning of its presence remains controversial.[13] The marked fibrinolytic activity in this instance may well represent the body's reaction to the fibrin deposition associated with intravascular clotting precipitated by the thromboplastic action of the amniotic fluid.

The presence of an antithrombin activity as well as a fibrinolysin has been observed in a recent fatal case.[10] With respect to the former, it is noteworthy that thrombin-inhibitory activity has been observed during the period of thromboplastic infusion in the experimental animal, which promptly disappeared following the cessation of the administration of the coagulant.[4c] While it is accepted that the presence of antithrombin in no way interferes with fibrin formation or clotting, could it not be that the presence of antithrombin activity also reflects the attempt of the body to defend itself against abnormal intravascular clotting?[14] Regardless of these considerations, the ready formation of a clot following fibrinogen administration indicates no appreciable defect in the first stage of blood clotting in this patient. The observation in itself excludes the possibility of a prothrombin or Ac-globulin deficiency or depletion, or a marked heparin activity. Actually, the known antagonistic effect between heparin and thromboplastin would suggest that the carefully controlled administration of heparin might be of some therapeutic value in the prevention of extensive intravascular clotting in this syndrome.

It is evident that a fine point of judgment will be required in the decision as to whether hysterectomy should be performed in such a patient as a means toward controlling the postpartum hemorrhage. Certainly the operation should never be considered until normal fibrinogen levels have been restored. Even then, if the fibrinolytic activity is marked, the body hemostasis may continue to be compromised. In retrospect and for future consideration, when a strong fibrinolysin exists, giving a soy bean preparation containing a trypsin inhibitor might increase the antiproteolytic activity of the blood and aid in producing a more stable clot.[15]

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11. Oliver, J.; Macdowell, M., and Tracy, A.: The Pathogenesis of Acute Renal Failure Associated with Traumatic and Toxic Injury: Renal Ischemia, Nephrotoxic Damage and the Ischemuric Episode, J. Clin. Investigation **30**: 1307, 1951.

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CONCLUSION

A syndrome that can be called amniotic fluid infusion does exist and may result in eventual blood defibrination. The assumption of an escape of thromboplastic substance from the uterus lends support to the belief that a similar mechanism accounts for uncontrolled hemorrhage seen in other obstetrical conditions. The clinical diagnosis of the defibrination can be substantiated by the demonstration of faulty clot formation in the Lee-White clotting test. The ultimate diagnosis will depend on the demonstration of a depletion of the circulating fibrinogen of the blood. The timely institution of fibrinogen replacement, not overlooking the decrease in the circulating blood volume, may salvage the patient from a death previously considered inevitable. While changes in many of the components of blood coagulation are undoubtedly effected in amniotic fluid infusion, the critical change is in the circulating fibrinogen concentration. The administration of this blood fraction to combat postpartum hemorrhage and a sufficient number of blood transfusions to maintain a normal blood volume is the best hope of averting death. The first successful outcome in a patient with presumptive amniotic fluid infusion and afibrinogenemia treated by fibrinogen replacement and transfusion is here reported.

ADRENAL APOPLEXY OCCURRING DURING CORTICOTROPIN THERAPY OF ULCERATIVE COLITIS

David A. W. Wilson, M.D.
and
Daniel Roth, M.D., Port Chester, N. Y.

Corticotropin has recently been employed in the treatment of chronic ulcerative colitis with favorable results.[1] We are reporting a case of ulcerative colitis treated unsuccessfully with corticotropin, death occurring after the development of a clinical picture of acute adrenal insufficiency. At autopsy the adrenals showed bilateral massive hemorrhages of the type associated with the Waterhouse-Friderichsen syndrome.

REPORT OF A CASE

The patient was a 51-year-old Scottish woman with a 14 year history of recurrent attacks of diarrhea, passage of blood and mucus, and frequent episodes of nausea and vomiting. The attacks occurred at about two week intervals and lasted for about two weeks. Supportive treatment and diet had been used until January, 1952, when postprandial pain and excessive gas developed in the right upper abdominal quadrant. At the same time, the colitis was intensified. Roentgenograms revealed poor function of the gallbladder, and in February a cholecystectomy was performed. At operation, a chronically inflamed gallbladder was removed, and examination of the colon revealed thickening and scarring of the serosa. Acute inflammatory changes were not seen.

Postoperatively, there was a flare-up of the colitis. Stool cultures were persistently negative for pathogenic bacteria and micro-organisms. An upper respiratory tract infection developed two weeks later, and this intensified the colitis. The patient showed no improvement on a regimen that included intravenous administration of electrolytes and nutriments, blood transfusions, and administration of 2 gm. of dihydrostreptomycin daily.

On March 28, the administration of corticotropin (Acthar) gel was commenced in a dose of 60 mg. three times a day for 2 days, then twice daily for the next 10 days. Although the patient continued to have crampy abdominal pain and diarrhea, she remained afebrile and was permitted to sit up out of bed. On April 10, the dose of corticotropin gel was reduced to 40 mg. twice daily, then gradually reduced further until it was discontinued on April 12. Three days later her temperature rose to 101.6 F, and corticotropin therapy was reinstituted, with a dose of 20 mg. four times daily. The patient's temperature fluctuated between 98 F and 101 F, and she became progressively weaker and apathetic. Increasing abdominal distention and tenderness were noted. On April 18, she complained of a sore throat, and examination revealed a diffusely inflamed pharynx. She then rapidly went into profound shock, her pulse became imperceptible, her skin became purplish and mottled, and her temperature rose to 106 F. She died 36 hours later.

Autopsy.—Gross Observations: The body was in a good state of nutrition, and there was abundant subcutaneous fat. Significant changes were limited to the abdomen. The entire intestinal tract was dilated, this being most pronounced at the cecum and the transverse colon. Dense adhesions bound the ascending colon to the omentum and to the anterior abdominal wall. Friable adhesions bound the hepatic flexure to the liver. The serosa of the entire colon was purplish-grey in color. The wall of the colon was generally greatly thinned. The mucosa was extensively ulcerated and sloughed, only a few shaggy patches and some interlacing strips of epithelium remaining. This alteration stopped abruptly at the ileocecal junction. The colon was filled with foul-smelling liquid feces. The small intestine and stomach were not remarkable except for the presence of abundant semiliquid tan-colored contents. The gallbladder and pelvic viscera were absent. The spleen was severely contracted and weighed 50 gm. Both adrenals were enlarged, swollen, and filled with massive hemorrhage. The left measured 7½ by 2½ by 3 cm. and the right, 8½ by 5 by 3 cm. The hemorrhage in the right adrenal had dissected along the retroperitoneal tissues to the level of the renal hilus. On section, both glands appeared massively hemorrhagic, and what little parenchyma could be recognized was soft and necrotic (fig. 1).

Microscopic Observations: The mucosa of the colon was extensively ulcerated and replaced by a thick layer of granulation tissue. Large numbers of plasma cells and fibroblasts were noted. Chronic inflammatory infiltrate extended into the serosa. The adrenals showed widespread hemorrhage and necrosis. Only small islands of more or less intact cortical cells could be identified. In these areas, the zona reticularis and zona fasciculata appeared severely disrupted, and only the zona glomerulosa presented a fairly normal appearance (fig. 2). Giemsa and Gram stains for bacteria were negative. The kidneys showed extensive desquamation of the epithelium of distal tubules. The splenic pulp was greatly contracted, and many plasma cells and hemosiderin-laden phagocytes were seen.

COMMENT

The changes in the adrenals were similar to those that have been described in the Waterhouse-Friderichsen syndrome.[2] It has been postulated by Rich[3] that the

From the departments of surgery and laboratories, United Hospital.

1. Kirsner, J. B., and Palmer, W. L.: Effects of Corticotropin (ACTH) in Chronic Ulcerative Colitis: Observations in 40 Patients, J. A. M. A. **147**: 541 (Oct. 6) 1951. Elliott, J. M.; Kiefer, E. D., and Hurxthal, L. M.: Symposium on ACTH and Cortisone as Related to Gastrointestinal Tract: ACTH in the Treatment of Chronic Ulcerative Colitis, Gastroenterology **19**: 722 (Dec.) 1951. Gray, S. J.; Reifenstein, R. W.; Benson, J. A., Jr., and Young, J. C. G.: Treatment of Ulcerative Colitis with Corticotropin (ACTH) and Cortisone: A Two Year Follow-Up, J. A. M. A. **148**: 1489 (April 26) 1952.

2. Martland, H. S.: Fulminating Meningococcic Infection with Bilateral Massive Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome) with Special Reference to Pathology, Medicolegal Aspects, and Incidence in Adults, Arch. Path. **37**: 147 (Feb.) 1944.

3. Rich, A. R.: A Peculiar Type of Adrenal Cortical Damage Associated with Acute Infections, and Its Possible Relation to Circulatory Collapse, Bull. Johns Hopkins Hosp. **74**: 1 (Jan.) 1944.

actual apoplexy is merely a sequel of other severe degenerative changes of the adrenal cortex due to stress, namely, depletion of cortical hormone as manifested by loss of lipids from cortical cells, subsequent shrinkage of the cords of cells with loss of support for the interstitial sinusoids, and, finally, dilatation of these sinusoids and hemorrhage through their damaged endothelium. The hemorrhage, then, is only the terminal event of a series of adrenal changes. In the Waterhouse-Friderichsen syndrome these degenerative changes may be observed, although actual hemorrhage, the terminal event, may not be present in any particular case. This explains the absence of adrenal hemorrhage in some cases of the syndrome, especially in adults, according to Rich. Cortin and, more recently, cortisone have been used in this condition to substitute for an adrenal cortex depleted of its store of hormone by stress, usually that of septicemia due to meningococci, streptococci, or pneumococci. Case reports have been published recently of successful treatment of the Waterhouse-Friderichsen syndrome with cortisone on this basis.[4]

In the case we are reporting, blood cultures were not carried out. Although bacterial stains of the adrenal glands were negative, it is not possible to rule out the likelihood that septicemia existed. The severe ulcerative colitis or the terminal pharyngitis could certainly have led to septicemia. If such were the case, corticotropin, being administered concurrently, was obviously incapable of stimulating the damaged adrenals to produce adequate amounts of cortical hormone. Cortisone might have been used advantageously as a substitute for the adrenals during the shock period.

Certain morphological changes in the adrenals have been described as being produced by corticotropin.[5] They include cortical hyperplasia, loss of lipids, hypertrophy of the zona fasciculata and reticularis, and other poorly correlated changes. These may be equivalent or related to the changes described by Rich as precursors of the full-blown picture of apoplexy. As yet, no evidence has been produced that corticotropin can cause apoplexy of the adrenals; however, the possibility must be considered that the hormone may have overstimulated the adrenal cortex, eventually causing it to become depleted of cortical hormone and setting the pathogenetic stage for the hemorrhages.

Fig. 1.—The adrenals in their natural positions surmounting the kidneys; both are swollen by hemorrhage and contain areas of necrosis.

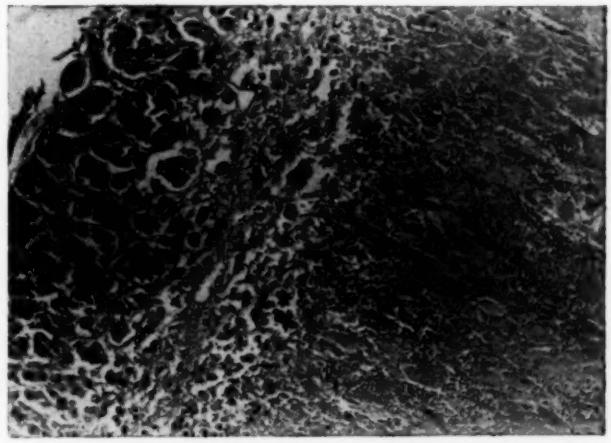

Fig. 2.—Section of adrenal cortex showing hemorrhage and necrosis involving the two inner coats and relatively little change in the zona glomerulosa; elsewhere this last coat, too, is necrotic.

SUMMARY AND CONCLUSIONS

A case of massive adrenal hemorrhage during corticotropin therapy for chronic ulcerative colitis is reported. It is not known whether a concurrent septicemia existed, although the possibility for such a complication was strong. There is a need for more case reports of similar or other accidents occurring during therapy with corticotropin and cortisone. In addition, the entire field of adrenal histophysiology must be better understood before any conclusions about the relationship between these hormones and the adrenals can be considered valid.

312 Westchester Ave. (Dr. Wilson).

4. Nelson, J., and Goldstein, N.: Nature of Waterhouse-Friderichsen Syndrome: Report of a Case with Successful Treatment with Cortisone, J. A. M. A. **146**: 1193 (July 28) 1951.

5. O'Donnell, W. M.; Fajans, S. S., and Weinbaum, J. G.: Human Adrenal Cortex After Administration of ACTH and Cortisone: Morphologic Changes, A. M. A. Arch. Int. Med. **88**: 28 (July) 1951.

The Future of Communicable Diseases.—The major communicable diseases will continue to decrease in importance. The tuberculosis death rate in this country declined by 41% in only five years between 1945 and 1950. It is now less than 20 per 100,000 of the population; in 1930 it was 71 per 100,000. Syphilis is no longer a major public health problem. It will continue to decline if public health efforts are concentrated upon those population groups in which there is the greatest prevalence. Deaths from pneumonia have declined greatly due to modern methods of chemotherapy. Recent experiments in the prevention of poliomyelitis hold real promise for a practicable method of preventing this disease within a relatively short time.

While the communicable diseases will be of relatively little importance in the measurable future, in my opinion most of them now prevailing will not be eradicated. You all know that it is very difficult to exterminate a biologic species. Already strains of micro-organisms have appeared which are resistant to formerly effective chemotherapy. I see a continuing struggle between scientists attempting to develop new chemotherapeutic weapons and increasingly resistant mutations of organisms and insects which they were designed to kill.—T. Parran, M.D., Dr.P.H., The Doctor of the Future, *The Pennsylvania Medical Journal*, January, 1953.

POSTOPERATIVE DECOMPRESSION OF THE STOMACH AND JEJUNUM BY GASTROSTOMY

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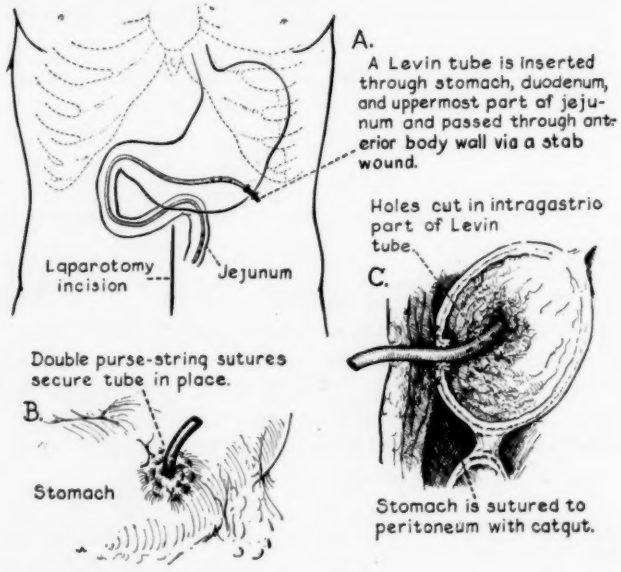
The value of decompression of the stomach and small bowel by means of nasal tubes passed into these organs has been proved in the treatment of paralytic ileus and the various types of peritonitis. Stricture of the esophagus is seen occasionally when nasal tubes have been kept in place for several days. A commoner complication is seen in persons who have bronchiectasis, chronic rhinitis, upper respiratory tract infection, or a poor cardiac reserve. With the use of a nasal tube in such patients, postoperative collapse of the lung or bronchopneumonia is a constant danger. Aged and debilitated patients may have a poor cough reflex, and, following laparotomy, it is often necessary to remove the


A.
A Levin tube is inserted through stomach, duodenum, and uppermost part of jejunum and passed through anterior body wall via a stab wound.
Laparotomy incision
Jejunum
Holes cut in intragastric part of Levin tube.
C.
Double purse-string sutures secure tube in place.
B.
Stomach
Stomach is sutured to peritoneum with catgut.

Procedure for inserting Levin tube for decompression of the stomach and jejunum after laparotomy.

nasal tube to give the patient a much needed rest and to keep the airways clear of mucus.

When performing a laparotomy in such patients, I have used the following maneuver with great success (see the figure). At the end of the operation, a double purse-string silk suture is placed in the anterior wall of the stomach, a small stab wound is made in the center of the inner circle, and a soft, sterile, old Levin tube is passed into the stomach. It is manipulated through the pylorus and duodenum and into the upper jejunum in most cases. Two holes, about one-third the diameter of the tube, are made about one and one-half inches apart in the part of the tube that is to remain in the stomach. The purse string sutures are then tightened and tied, invaginating the opening in the stomach wall. A small stab wound is made in the abdominal wall in a convenient place, the proximal end of the tube is brought out through this small wound, and the anterior wall of the stomach is fixed to the peritoneum of the anterior abdominal wall by three or four chromic absorbable surgical sutures placed in the stomach wall near the gastrostomy opening.

This procedure is easily and rapidly performed. Suction can then be applied to the proximal end of the tube, and both the stomach and small bowel can be kept decompressed for a number of days. These patients present a very different picture from that seen in similar cases in which the tube is passed through the nose. The added rest plus a clear airway may make the difference between success and failure in some.

The holes in the intragastric part of the tube must be kept open, and it is wise to irrigate the tube from time to time. If the stomach is not being kept empty, a complication often seen when nasal tubes are passed through the stomach into the small bowel, the tube can be withdrawn enough to allow for cleansing or enlarging the holes that drain the stomach. If desired, the end of the tube can be withdrawn into the stomach, and the holes that are exposed to the air can be covered with a band of adhesive tape so that intragastric suction can be continued without replacing the tube. When the tube has served its purpose it can be pulled out. I have never seen any sign of leakage after removal of the tube.

59 E. Madison St. (3).

CORTICOTROPIN (ACTH) IN TREATMENT OF AGRANULOCYTOSIS FOLLOWING SULFISOXAZOLE THERAPY

Harry B. McCluskey, M.D., East Orange, N. J.

The purpose of this paper is to report additional evidence of the value of corticotropin (ACTH) in the treatment of agranulocytosis. Three cases have already been reported in the literature,[1] and a fourth is reported here.

REPORT OF A CASE

A 72-year-old white man, a retired banker, was admitted to the Presbyterian Hospital, Newark, N. J., June 2, 1952, with a history of urinary frequency and dysuria of at least one year's duration. On February 9, 1952, he was in an automobile accident and was hospitalized for two weeks because of fractures of the left arm and five ribs. On May 2, 1952, sulfisoxazole (Gantrisin) therapy was started because of the urologic complaints. During the ensuing four weeks, the patient ingested eight tablets (0.5 gm. each) of sulfisoxazole daily for the first week, four tablets daily for the second week, and then eight tablets daily for the remainder of the period. Thus his total intake of the drug was about 100 gm. Starting May 11, he became weak and tired and each day spent more time in bed. On May 16, he began to cough and have slight fever, which persisted three days and returned 12 days later. On June 2, his temperature was 102 F. Although scheduled to enter the hospital on this day for a transurethral resection, it was apparent that he was in no condition for the operation and that he obviously required hospitalization. On admission on June 2, the patient was acutely ill, lethargic, and coughing and

Dr. S. A. Goldberg, Pathologist, Presbyterian Hospital, Newark, N. J., examined the blood and bone marrow specimens in this case.

1. (*a*) McMillin, J. S.: Successful Use of ACTH in the Treatment of Agranulocytosis due to Sulfadiazine, Am. J. M. Sc. **222**: 392-395 (Oct.) 1951. (*b*) Geyer, G.; Hein-Sekula, M., and Keibl, E.: Heilung einer Agranulozytose durch ACTH, Klin. Med. **7**: 61-72 (Feb. 1) 1952. (*c*) Hart, F. D.; Wraith, D. G., and Mansell, E. J. B.: Agranulocytosis Successfully Treated with ACTH, Brit. M. J. **1**: 1273-1275 (June 14) 1952.

complained of pains in the chest. He had a temperature of 101 F. His white blood cell count on the following day was 1,400 per cubic millimeter of blood, with 99% lymphocytes and 1% basophils. The blood urea nitrogen level was 33 mg. per 100 cc., and the fasting blood sugar level was 71 mg. per 100 cc. A roentgenogram of the chest revealed prominent hilar shadows and increased markings of questionable nature at the base of the right lung; perhaps these were due to multiple emboli or to a bronchiectatic condition. The patient's condition became rapidly worse, and on June 4 he was extremely lethargic and had a frequent irritating cough, congestion in the right side of the chest, and fecal incontinency. He was unable to feed himself and could take only liquids in small amounts. The white blood cell count had fallen to 750, with 98% lymphocytes and 2% monocytes. On June 5, his temperature rose to 104 F, his lethargy had deepened to semi-stupor, and his food intake was negligible. The mucosa of the mouth and throat was hyperemic and superficially ulcerated, and there were many rales throughout the lungs, especially on the right side. The white blood cell count was 850, with 97% lymphocytes and 3% monocytes, and the blood platelet count was 446,600. The patient was considered to be near death. The results of a bone marrow study done at this time are shown in table 1.

Treatment up to this time had consisted of administration of sulfisoxazole, which was discontinued when the patient was admitted to the hospital, administration of penicillin 800,000 units every eight hours, administration of 500 cc. of whole blood on June 4, the usual supportive and nursing care, and urinary drainage by means of an indwelling catheter. Corticotropin therapy was commenced immediately after midnight on June 6 in a dose of 25 mg. every six hours. After two doses of corticotropin, the white blood cell count was 1,500, with 88% lymphocytes, 10% monocytes, and 2% granulocytes. From then on the white blood cells increased each day to a high of 142,000 on June 14. The dose of corticotropin was decreased steadily from 100 mg. daily for two days to 60 mg. daily for two days, 30 mg. for one day, 15 mg. for one day, and, finally, 8 mg. daily for two days. Thus, a total of 381 mg. was given over a period of eight days. On June 14, corticotropin therapy was discontinued, and the white blood cell count immediately began to drop, reaching 10,650 on June 26 (table 2).

The patient's clinical condition improved with the improvements in his white blood cell count. The temperature dropped gradually from 104 F on June 5 to normal on June 9 (see the figure). General improvement accompanied these changes but occurred more slowly, congestion in the chest clearing within

TABLE 1.—*Results of Bone Marrow Studies on a Patient with Agranulocytosis Before and After Corticotropin Therapy*

Before Corticotropin Therapy		After Corticotropin Therapy			
6-5-52		6-23-52		7-29-52	
White blood cell count	2,000/cu. mm.	White blood cell count	81,000/cu. mm.	White blood cell count	14,750/cu. mm.
Myeloblasts	3%	Myelocytes	13%	Myelocytes	16%
Promyelocytes	10%	Juvenile forms	14%	Juvenile forms	5%
Lymphocytes	83%	Band cells	23%	Stab cells	15%
Monocytes	3%	Segmented neutrophils	39%	Segmented neutrophils	50%
Basophils	1%	Lymphocytes	10%	Lymphocytes	12%
Megaloblasts	1*	Eosinophilic myelocytes	1%	Monocytes	2%
Erythroblasts	8*	Megaloblasts	1*	Normoblasts	9*
Normoblasts	38*	Normoblasts	9*		
		Hyperplastic marrow	....		
Remarks: A number of megakaryocytes, plasma cells, generally few formative cells, a few stem cells, and considerable amount of fatty marrow present.		Remarks: Maturing neutrophils, erythroblasts, eosinophilic myelocytes, eosinophils, stem cells, and, occasionally, megakaryocytes.		Remarks: Many stem cells, maturing neutrophils, eosinophils, erythroblasts, and, occasionally, megakaryocytes.	

* Number seen per 100 white cells counted.

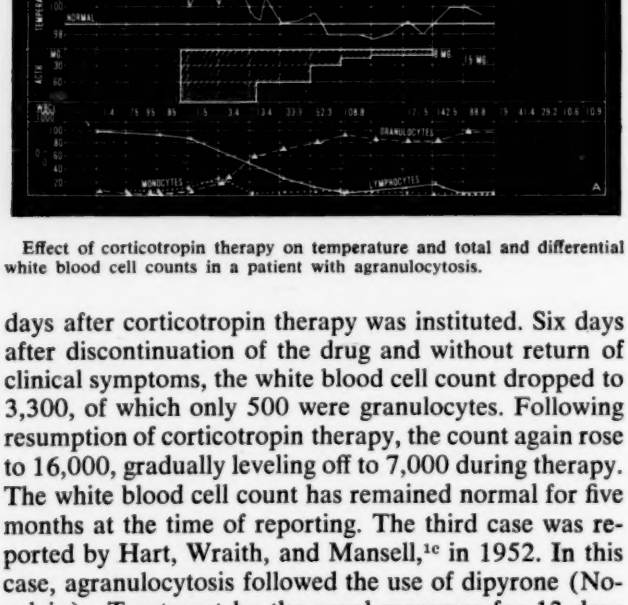
TABLE 2.—*Differential White Blood Cell Count of a Patient with Agranulocytosis Before, During, and After Corticotropin Therapy*

Date	White Blood Cell Count	Monocytes	Lymphocytes	Segmented Neutrophils	Stab Cells	Juvenile Forms	Myelocytes	Basophils	Eosinophils	Promyelocytes	Myeloblasts
Before Corticotropin Therapy											
6/ 3	1,400	..	99	..	..	..	..	1	..	..	..
6/ 4 (a. m.)	750	2	98	..	..	..	..	..	..	..	..
6/ 4 (p. m.)	950	2	98	..	..	..	..	..	..	..	..
6/ 5	850	3	97	..	..	..	..	..	..	..	..
During Corticotropin Therapy											
6/ 6	1,500	10	88	..	1	..	..	1	..	..	..
6/ 7	3,400	26	61	4	1	3	..	..	..	3	2
6/ 8	13,400	2	37	33	14	13	1	..	..	..	..
6/ 9	33,900	3	26	30	14	9	17	1	..	..	..
6/10	52,300	7	14	47	17	5	8	..	..	2	..
6/11	108,800	3	5	43	25	5	19	..	..	..	..
6/13	121,500	4	9	46	26	12	2	..	..	1	..
6/14	142,500	1	15	52	23	1	8	..	..	..	..
After Corticotropin Therapy											
6/15	88,800	1	3	70	16	2	8	..	..	..	..
6/16	98,000	..	3	67	20	..	10	..	..	..	..
6/17	79,000	2	3	83	4	2	6	..	..	..	..
6/18	60,000	7	2	72	17	2	..	..	..	..	..
6/19	41,450	..	9	76	13	2	..	..	..	..	..
6/20	32,800	7	7	77	7	2	..	..	..	..	..
6/21	48,000	2	2	86	9	..	1	..	..	..	..
6/22	29,250	3	7	80	9	..	..	1	..	..	..
6/24	15,050	3	2	90	4	..	..	..	..	..	..
6/26	10,650	4	15	79	2	..	..	..	..	..	..

a week and soreness of the mouth and diarrhea remaining troublesome for several weeks. On June 16, the patient became ambulatory, and on August 6 it was possible to perform a transurethral resection.

COMMENT

This is the fourth case reported of recovery from severe agranulocytosis in which corticotropin apparently was an effective part of the treatment. McMillin,[1a] in 1951, reported on the first patient, who was critically ill with agranulocytosis following the use of sulfadiazine and chloramphenicol and who received corticotropin. Response to this drug occurred within 48 hours; at this time, the bone marrow contained mature polymorphonuclear neutrophils. The second case was reported by Geyer, Hein-Sekula, and Keibl,[1b] in 1952. These investigators gave corticotropin to a patient with severe infection of the face complicating agranulocytosis, in whom all other treatment had failed. The lowest white blood cell count was 1,700, with a differential count of 98% lymphocytes and 2% toxic granulocytes. The response to corticotropin was slower than in the first reported case, occurring on the fifth day. In that interval, the bone marrow changed from complete maturation arrest to no arrest, and the white blood cell count rose to 11,000, 10



Effect of corticotropin therapy on temperature and total and differential white blood cell counts in a patient with agranulocytosis.

days after corticotropin therapy was instituted. Six days after discontinuation of the drug and without return of clinical symptoms, the white blood cell count dropped to 3,300, of which only 500 were granulocytes. Following resumption of corticotropin therapy, the count again rose to 16,000, gradually leveling off to 7,000 during therapy. The white blood cell count has remained normal for five months at the time of reporting. The third case was reported by Hart, Wraith, and Mansell,[1c] in 1952. In this case, agranulocytosis followed the use of dipyrone (Novalgin). Treatment by the usual measures for 13 days was unsuccessful, and the patient's condition appeared hopeless before corticotropin therapy was instituted. On the third day of this treatment, after the patient had received 200 mg. of the drug, general improvement occurred and progress continued from that time.

SUMMARY

A case of successful treatment of agranulocytosis with corticotropin (ACTH) is reported. Sulfisoxazole (Gantrisin) appeared to be the causative agent, as it is the only drug known to have been used prior to onset of the condition. Corticotropin was administered, with immediate and pronounced clinical improvement plus a leukemoid reaction that abated with cessation of corticotropin therapy. The immediate response in granulocyte production in this patient and in three patients previously reported leads us to believe that corticotropin is a more effective medicament in the stimulation of granulocyte formation in agranulocytosis than anything previously utilized.

40 Hawthorne Ave.

DECORTICATION OF THE HEART

REPORT OF A CASE

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Delorme,[1] in 1895, suggested that decortication of the heart should be undertaken much as is decortication of the lung for chronic empyema. Between the years 1895 and 1898, Delorme repeatedly addressed the Clinical Societies of Paris advocating a lysis of the intrapericardial adhesions followed by closure of the pericardium and later recommending actual excision of a portion of the pericardium. The latter operation is the one used today, which is in actuality a pericardiectomy used as the treatment for a constrictive pericarditis. Although the syndrome had been described, it remained for Volhard in 1923 to describe the exact physiology of this constrictive pericarditis and to employ the term inflow stasis.

As it stands today, the treatment of constrictive pericarditis usually follows an infective pericarditis, which heals by scar and, often times, calcification; however, as skill in treating traumatic wounds of the chest is gained, the technique should be modified to fit the changing time. Traumatic wounds of the heart resulting in a cardiac tamponade that is not adequately taken care of by aspiration and yet does not warrant an open thoracotomy often results in an organized clot about the myocardium of the heart within the pericardial sac, and, as in the case presented in this paper, this organized clot definitely produces an inflow stasis that leads to the signs of a constrictive pericarditis. It is with this in mind that we suggest the following treatment should this syndrome ever occur following a traumatic wound to the heart.

A man, aged 20, was admitted July 9, 1950. He had had pain over the heart and increasing difficulty in breathing for the last 24 hours. On June 10, 1950, while watching a street fight, the patient was stabbed in the chest. Soon after he started home in a taxi, he became unconscious and was taken to a local hospital by the taxi driver where he remained until July 8. His treatment consisted of pericardial taps, blood transfusions, and antibiotic therapy. After 10 days he became ambulant. The following day he was seized with severe pain over the heart, associated with shortness of breath. He was immediately put to bed, and pericardial tap again revealed 200 cc. of blood. Oxygen was given as indicated. His condition improved; however, he was kept on bedrest until 48 hours before his discharge. On admission to this facility, he was in acute distress with marked apprehension and dyspnea.

Consultant in Surgery (Dr. Skinner) and Former Resident in Surgery (Dr. Farr), U. S. Public Health Service Hospital.

1. Delorme, E.: Bull. et mém. Soc. d. chirurgiens de Paris **24**: 918, 1898.

The physical examination revealed a temperature of 102.6 F, pulse 120, and blood pressure 98/70 mm. Hg. There was a healed stab wound on the anterior chest close to the midline at the level of the right fourth intercostal space. The lungs were clear to percussion and auscultation. There was an increase in the cardiac dulness, and the heart sounds were diminished throughout. Otherwise, the examination showed nothing abnormal. The red blood cell count was 2,950,000, hemoglobin 11 gm. per 100 cc., and hematocrit 35%. X-ray examination revealed cardiac enlargement with some effusion in the left base. Venous pressure was 260 mm. of water. Circulation time with calcium gluconate was 17 seconds.

On the day of admission, the patient became markedly dyspneic and cyanotic with marked tachycardia. Pericardial tap was done and a small amount of serosanguinous fluid removed. Culture of the fluid was negative. An electrocardiogram revealed definite evidence of myocardial damage. Under oxygen and digitalis therapy, the patient improved. On July 12, however, he again suffered severe attacks of dyspnea and substernal pain. Venous pressure was elevated to 320 mm. of water, and circulation time was 24 seconds.

It was felt that the patient had a localized hemopericardium and was considered for surgical intervention. On July 14, a thoracotomy was performed under ether given intratracheally. Incision was made in the right third intercostal interspace. The pericardium was greatly thickened. The pericardial space contained an organized clot. The organized clot, or peel, was easily separated from the pericardium and stripped with little difficulty from the myocardium. The wound, which was in the center of the insertion of the inferior and superior vena cava into the right auricle, showed a well-organized clot over this area, and this was not disturbed. Following the removal of this constricting peel about the inferior and superior vena cava, the right auricle completely filled and there was an increase in the stroke volume. The peel that existed over the left ventricle appeared to play no part in the restriction of the heart action, but this was removed in order to prevent future complications. A 3 in. square of pericardium over the region of the stab wound was left open for drainage into the pleural cavity. The lung was reexpanded and the chest closed without drainage.

Three days postoperatively, venous pressure was 112 mm. of water with a normal circulation time. The patient experienced some dyspnea on exertion for the first five days postoperatively. The wound healed primarily, and no infection was experienced in the pleural space. The patient was ambulated on the ninth postoperative day with no ill-effects. He was maintained on digitalis. An electrocardiogram on the 4th postoperative day showed no essential change from the preoperative report; however, an electrocardiogram on the 15th postoperative day revealed that there was marked improvement in the T waves, although there was still some evidence of minimal myocardial damage present. Auscultation of the heart revealed no evidence of a friction rub. The patient gradually improved, and his activity about the ward was carried on without any definite shortness of breath. On the 25th postoperative day, the patient was discharged for a 30 day convalescent period, at which time he was to return for further reevaluation of the cardiac status prior to his returning to duty with the military forces.

He did well for approximately 15 days, and then a moderate amount of sharp pain below the left nipple developed. This was exaggerated by respiration. There was no dyspnea accompanying this episode; however, the pain became increasingly severe and the patient was noted to be febrile. He was admitted to a hospital in Cleveland, and a diagnosis of acute pericarditis was made. He was given penicillin, and after one week of treatment all symptoms subsided. An electrocardiogram report substantiated the diagnosis of an acute pericarditis.

The patient was again admitted to this hospital on Sept. 22, 1950, for a check-up. He stated that at the time he felt entirely well and had been so for the past two or three weeks. The only symptom that he had was a very slight exertional dyspnea. There had been no cyanosis, edema, or precordial pain. On this admission, temperature was normal, pulse 90 per minute, and blood pressure 110/70 mm. Hg. Laboratory findings were normal. Venous pressure was 95 mm. of water, and circulation time was 11 seconds (arm-to-tongue) and 6 seconds (arm-to-lung). A chest roentgenogram revealed the heart size to be within normal limits. An electrocardiogram was normal. He was discharged Oct. 16 asymptomatic, and returned to full duty with the armed forces. A six months' check revealed that he is able to carry out his duties. His electrocardiogram has remained normal.

COMMENT

This patient presented an essentially typical picture of cardiac tamponade. A symptomless interval, as described by Elkin,[2] existed, i. e., the time he left the scene of the fight, placed himself in a taxi prior to his return to his home, and then lost consciousness. This was followed by the symptoms of tamponade, which Beck [3] described, namely, that of (1) increased venous pressure, (2) decreased arterial pressure, and (3) a small, quiet heart. Pericardial taps resulted in complete relief of his symptoms, and patient was doing fairly well, until he was allowed out of bed. This seemed to precipitate another leak of blood, and the same symptoms intervened. Loculations prevented complete removal by aspiration of the new blood from the pericardiac sac. This, however, resulted in sufficient relief to allow the patient to be discharged from the first hospital. Activity again caused the symptoms, and he appeared at this hospital, where only a small amount of fluid was removed with only temporary improvement. On exploration, the findings were not of free fluid in the pericardial sac; however, there was a thin peel of organized blood that completely surrounded the inferior and superior vena cava and was definitely obstructing the venous return. On removal of this peel, the right auricle immediately filled. There was an increase in the stroke volume with increased cardiac output. There was only a small portion of this peel over the left ventricle.

SUMMARY

This case has been presented to call attention to an adjunct treatment in stab wounds of the heart, and we feel that this treatment should be considered early as a possibility of preventing a future constricting pericarditis as the clot calcifies. We feel that the hazards of (1) paroxysmal tachycardia, (2) ventricular fibrillation, (3) complete arrhythmias, (4) cardiac arrest, and (5) uncontrollable myocardial bleeding involved in pericardiectomy are largely eliminated by removing this loosely organized blood clot before it becomes too adherent.

2. Elkin, D. C.: Wounds of the Heart: Report of 13 Cases, J. Thoracic Surg. 5: 590, 1936.
3. Beck, C. S.: Acute and Chronic Compression of the Heart, Am. Heart J. 14: 515, 1937.

The Doctor's Part in Rehabilitation.—The practice of rehabilitation for the general practitioner or for any doctor, begins with the belief in the basic philosophy that the doctor's responsibility does not end when the acute illness is ended or surgery completed; it ends only when the individual is retrained to live and to work with what is left. This basic concept of the doctor's responsibility can be achieved only if rehabilitation is considered an integral part of medical service. Any program of rehabilitation is only as sound as the basic medical service of which it is a part. The diagnosis and prognosis must be accurate, for it is upon them that the feasibility of retraining is determined.—H. A. Rusk, M.D., Total Rehabilitation, *Journal of the National Medical Association*, January, 1953.

TREATMENT OF SNAKE VENOM POISONING WITH CORTISONE AND CORTICOTROPIN

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and
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Within the last five months we have had the opportunity to observe the effects of cortisone or corticotropin in treatment of three patients bitten by poisonous snakes. All received, in addition, standard treatment consisting of the application of a tourniquet and incision and suction of fang wounds, antivenom, tetanus antitoxin, antibiotics, and other symptomatic and supportive therapy. We have been impressed by the pronounced decrease in morbidity in these patients as compared with 11 others seen in the last three years who did not receive cortisone or corticotropin. We have been able to find no other reports of cortisone therapy for this disorder and only one report of the use of corticotropin.[1]

REPORT OF CASES

CASE 1.—A 4-year-old white girl was admitted to the Clinch Valley Clinic Hospital on Aug. 29, 1952, because of a snake bite of the left foot. She had been bitten by an unknown type of a poisonous snake (presumably a copperhead) about one hour before admission. The temperature (rectal) was 100 F, the pulse rate 120 beats per minute, and the respiratory rate 22. She appeared to be in considerable pain, perspired freely, and was acutely ill. Two small puncture wounds were present on the dorsum of the left foot, with surrounding ecchymosis and swelling, extending to the ankles. The hemoglobin level was 85% (Sahli), the white blood cell count 9,600 per cubic millimeter, with 10% juvenile forms, 70% segmented neutrophils, and 20% lymphocytes.

A tourniquet was applied above the area of swelling. The puncture wounds were incised and suction applied. Fifteen cubic centimeters of antivenom was administered locally around the wounds and in the hips. Tetanus antitoxin, 1,500 units, was given intramuscularly. Twenty-four hours after admission the temperature was still elevated, and the swelling had extended to the knee. The patient appeared toxic and severely ill. Cortisone administration, 25 mg. orally every six hours, was begun. Within eight hours the temperature had declined to normal, pain had largely subsided, and the patient was symptomatically much improved. The swelling of the left foot and leg gradually decreased and had largely disappeared within the next 48 hours. The patient was discharged essentially well on Sept. 2, 1952.

CASE 2.—A five-year-old white boy was admitted to the Clinch Valley Clinic Hospital on Sept. 1, 1952, because of a snake bite of the right hand. He had been bitten by a copperhead moccasin about 40 minutes prior to admission. The temperature (oral) was 98 F, the pulse rate 110 beats per minute, and respiratory rate 20. The patient appeared acutely ill and in severe pain. Two puncture wounds typical of snake bite were present on the dorsum of the right hand. There was considerable swelling and ecchymosis involving most of the dorsum of the right hand and wrist. The hemoglobin level was 88% (Sahli), and the white blood cell count was 21,300 per cubic millimeter, with 31% juvenile forms, 50% segmented neutrophils, and 19% lymphocytes. Results of complete urinalysis were normal.

Immediate therapy consisted of the application of a tourniquet above the area of swelling. Cruciate incisions of the puncture wounds were made and suction applied. Antivenom, 15 cc., was administered locally and in the arm. Tetanus antitoxin, 1,500 units, was given, and penicillin therapy was begun. Shortly after admission, cortisone therapy, 25 mg. orally every six hours, was started. The temperature (oral) rose to 100 F within the first 16 hours and fell to normal in the next 4 hours. The swelling of the right hand increased slightly within the first 12 hours but did not extend above the wrist. The swelling rapidly subsided in the next 36 hours. The pain in the extremity and the general toxicity subsided within a few hours after cortisone therapy was begun. The patient was discharged essentially well on Sept. 4, 1952.

CASE 3.—A five-year-old white boy was admitted to the Clinch Valley Clinic Hospital on May 28, 1952, for treatment of a snake bite of the right foot. He had been bitten by a copperhead moccasin, and 45 minutes later he received initial therapy from his local physician, consisting of cruciate incisions and administration of antivenom and 25 mg. of corticotropin intramuscularly. He was then rushed to this hospital. On admission his temperature (oral) was 98.6 F, pulse rate 90 beats per minute, and respiratory rate 22. He appeared acutely ill and complained of severe pain in the bitten extremity, with swelling extending from the foot to the middle of the right leg.

During hospitalization the patient received penicillin daily and ice packs to the right foot and leg for the first day. The temperature (oral) rose to 100 F and remained elevated for the next 48 hours. No further corticotropin therapy was administered. The swelling did not progress further up the leg and began to subside on the third hospital day. The patient was discharged June 1, 1952, essentially well.

COMMENT

Snake venom is a complex agent containing a large number of toxic components, of which some act locally and others act on the vital organs after absorption.[2] The venom of the North American pit viper (to which group the copperhead moccasin belongs) contains cytolysins, hemolysins, hemocoagulins, proteolysins, and other enzymatic substances, which produce the local and systemic effects of venenation.[3] There is much variation in the clinical picture produced after snake bite. This is dependent on the species, site, and nature of the of the wound, dose of injected venom, age and size of the victim, and the immediate treatment rendered. Following the bite, there is usually burning pain, often excruciating, which occurs at the site of injury in three or five minutes. Within 10 minutes a distinct swelling develops and advances up the limb. The skin of the bitten area becomes dark and purplish, and bloody fluid oozes from the wound. The patient becomes weak, dizzy, and faint, perspires freely, is nauseated, and often vomits blood-stained material. Subcutaneous and internal hemorrhages may occur, with bleeding from the nose, bladder, and intestines. A generalized urticaria may develop, with intense itching and burning, within one hour.

Snake venom, being a foreign protein, may produce an anaphylactic state. Williams[5] reported a case of anaphylactic shock from wasp sting, with apparent lifesaving results from the administration of cortisone. Metts[1] reported the case of a housewife bitten by a copperhead moccasin, who was given corticotropin with remarkable improvement, including relief of pain and disappearance of other toxic signs and symptoms, especially the altered cellular reaction seen in our patients. In the cases reported here, in which cortisone was used, it

From the Clinch Valley Clinic Hospital.

1. Metts, J. C., in Proceedings of the Second Clinical ACTH Conference, J. H. Mote, editor, Philadelphia, Blakiston Company, 1951, Vol 2: Therapeutics.

2. Babcock, W. W.: Principles and Practice of Surgery, Philadelphia, Lea & Febiger, 1944.

3. Cecil, R. L., and others: A Textbook of Medicine, ed. 8, Philadelphia, W. B. Saunders Company, 1951.

4. Deleted on proof.

5. Williams, W. H.: Anaphylactic Shock from Wasp Stings, South Carolina M. A. 68: 187 (June) 1951.

was apparent that remarkable symptomatic relief occurred within a few hours. The temperature returned to normal, pain subsided, and the general toxic state disappeared. Objectively, the swelling and ecchymosis present did not advance significantly, as would have been expected in snake bite. In these patients the swelling subsided much more rapidly than in another 11 who did not receive cortisone or corticotropin. It is probable that the corticotropin administered early in the treatment of the patient in case 3 may have largely accounted for the favorable course, with early limitation of pain and swelling. Continued therapy with corticotropin possibly would have resulted in even more rapid improvement. It is noteworthy that all these patients were 5 years old or younger, and a generally poor prognosis would have been expected, because of their age and size.[3]

The effectiveness of cortisone in these patients is probably due to its remarkable ability to inhibit local tissue reactivity to foreign protein and its symptomatic effects on pain and fever.[6] An additional indication for cortisone or corticotropin therapy (not encountered in these patients) is the frequent generalized urticaria from the snake venom [4] and from antivenom, especially in cases in which it is necessary to administer additional antivenom. It is possible that in such a situation these agents may be lifesaving.

SUMMARY

Three cases of snake bite venom poisoning in which cortisone or corticotropin therapy was used, with pronounced decrease in morbidity, are reported. Cortisone and corticotropin are valuable adjuvants in the treatment of this type of poisoning.

6. Cortone, A Handbook of Therapy, Rahway, N. J., Merck & Company, Inc., 1952.

The Basis of Success.—I have noted a trend, which certainly has not reached flagrant proportions, characterized by a failure of interns and residents to appreciate the importance of what is one of the most fundamental principles for success in medicine. This basis of success is persistently purposeful, hard work. It is unnecessary to tell you that the life of a successful physician is characterized by long hours, tense and sometimes irritating situations, and inability to control one's time. Most of us know also that success in our profession is related chiefly to two things, namely (1) intelligence which varies from average to sheer genius and (2) the ability to carry on persistent work.

There are few geniuses in the world, probably less than a dozen per generation in medicine, or perhaps even not that many. Even Osler says that he was endowed with only "mediocre brains" and yet he was the outstanding physician of the generation in which he lived. But we can all work! Perhaps some insight into the reason for his success may be obtained from the following sentence which Osler also said, "The master word in medicine is work. . . . Though a little one, it looms large in meaning. It is the open sesame to every portal, the great equalizer in the world, the true philosopher's stone which transmutes all of the base metal of humanity into gold." The thought expressed by Charles Kingsley has always appealed to me and would be a good thing for every person in the world to have hanging over his bed to be read every morning, as an inspiration for each day. It is as follows: "Thank God that every morning when you get up that you have something to do which must be done, whether you like it or not. Being forced to work, and forced to do your best, will breed in you temperance, self-control, diligence, strength of will, content, and a hundred other virtues which the idle will never know."—C. C. Sturgis, M.D., The Changing Medical Scene, *Postgraduate Medicine*, March, 1953.

PRIMARY HEMANGIOSARCOMA OF THE SPLEEN DIAGNOSED BY NEEDLE BIOPSY

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Splenic aspiration, apparently used first in France for the cultural demonstration of typhoid bacilli more than 50 years ago, has been employed in the diagnosis of various hematological disorders by many European investigators.[1a] Only recently has its use been advocated in this country by Block and Jacobson [2] and by Morrison and his co-workers.[3a] It is the purpose of this report to present an instance in which splenic biopsy was the only means of diagnosing a primary splenic tumor. To our knowledge, this is the first case reported in the literature in which the diagnosis of hemangiosarcoma originating in the spleen was established prior to the removal of the organ on the operating table or at autopsy. Several cases, however, have been reported in which lymphosarcoma and reticulum cell sarcoma of the spleen were diagnosed by splenic aspiration.[1]

REPORT OF A CASE

The patient was a 62-year-old American-born woman. Her family history was noncontributory. She had the usual childhood diseases, was married, and had one living daughter. She had had no miscarriages. At the age of 46, she underwent a hysterectomy because of a fibromyoma of the uterus. When she was 49, a local tumor was removed from her right breast for chronic cystic mastopathy. On May 3, 1951, she was admitted to the Passaic General Hospital because of gross hematuria and recurrent chills and fever. Physical examination revealed no significant findings. The spleen was apparently not enlarged. X-ray examination of the right kidney disclosed several stones in the renal pelvis. Examination of the urine showed many blood and pus cells. Urine culture revealed beta hemolytic streptococci. The blood cell count showed red blood cells 3,800,000, white blood cells 5,400, and hemoglobin 11.8 gm. A differential count showed polymorphonuclear neutrophils 65%, eosinophils 7%, lymphocytes 26%, and monocytes 2%. Urea nitrogen was 11 mg., creatinine 1.1 mg., and nonprotein nitrogen 32 mg. per 100 cc. The Wassermann reaction in the blood was negative. A right nephrectomy was done and the kidney was found to contain several large stag-horn calculi, and there was evidence of chronic interstitial nonspecific inflammation. The patient was discharged nine days after the nephrectomy.

In the weeks following discharge, the patient complained of fatigue and pain in the left side of the abdomen, and she also experienced repeated attacks of retching and vomiting. She was admitted to the Beth Israel Hospital on July 10, 1951. On physical examination she appeared strikingly pale. The only significant finding was that the spleen was enlarged; it could easily be felt 4 fingerbreadths below the left costal margin, and it extended to the midline. The spleen was moderately tender on

From the laboratories of the Beth Israel Hospital, Passaic, N. J., and the Department of Pathology, St. Catherine's Hospital.

1. (*a*) Möeschlin, S.: Die Milzpunktion: Technik diagnostische und haematologische Ergebnisse, Basel, Benno Schwabe & Company, 1947. (*b*) Weil, P. E.; Isch-Wall, P., and Perlès, S.: La ponction de la rate; Procédé de diagnostique cytologique, Paris, Masson et Cie, 1936.

2. Block, M., and Jacobson, L. O.: Splenic Puncture, J. A. M. A. **142**: 641-647 (March 4) 1950.

3. (*a*) Morrison, M., and others: Splenic Aspiration: Clinical and Hematological Considerations Based on Observations in 105 Cases, J. A. M. A. **146**: 1575-1580 (Aug. 25) 1951. (*b*) Chatterjea, J. B.; Meza Arrau, C., and Dameshek, W.: Splenic Puncture, Brit. M. J. **1**: 987-990 (May 10) 1952.

palpation. The diaphragm was high, and occasional crepitant rales could be heard above both lung bases. Blood pressure was 140/90 mm. Hg. Laboratory studies showed blood type O, Rh positive. Repeated urinalysis, which was otherwise normal, showed albumin 1 to 2+ and few to many white cells. Repeated blood cell counts showed red blood cells 2,100,000 to 2,900,000, hemoglobin 5.6 to 7.2 gm., white blood cells 7,100 to 8,700, and a differential count of 10 stab cells, 71% polymorphonuclear neutrophils, 15% lymphocytes, and 4% monocytes. Blood smears consistently showed poikilocytosis, anisocytosis, and anachromasia. There were 170,000 platlets. Total bilirubin was 0.45 mg. per 100 cc.; no direct reaction was obtained. Total protein was 6.6% with albumin 4.1% and globulin 2.4%. Sugar was 114 mg., creatinine 1.4 mg., and nonprotein nitrogen 54 mg. per 100 cc. Liver function tests showed icteric index 5 units and thymol turbidity 2 units; cephalin flocculation was negative. Alkaline phosphatase was 4.6 King-Armstrong units. The direct Coomb's test was negative. There was no increased amount of urobilinogen in the urine. Stools did not contain occult blood. Gastric analysis revealed no free hydrochloric acid and 4 clinical units total acid in the fasting specimen, and, after histamine was given, the highest values observed were 32 clinical units of hydrochloric acid and 42 clinical units of total acid. Sternal puncture showed cellular bone marrow with moderate left shift in myeloid elements and relative increase in mature nucleated red cells reflecting peripheral anemia. A normal number of megakaryocytes were found. Neither Gaucher cells nor parasites were demonstrated. The bone marrow was interpreted as reflecting peripheral anemia without evidence of a primary blood dyscrasia. An electrocardiogram showed a sinus tachycardia, with a slight abnormality of the T waves. On x-ray examination the lungs appeared normal. The heart was in a transverse position, the diaphragm was elevated, and the arch of the aorta was widened. A flat plate of the abdomen showed a large homogeneous density in the left upper and greater portion of the lower quadrant of the abdomen that apparently represented an enlarged spleen. The gas-containing viscera, stomach, and small and large bowel were displaced to the right and downward. A roentgenogram of the pelvis and both femurs showed no abnormalities. An intravenous pyelogram showed the left kidney to be of normal size and moderately ptosed. Review of the pyelogram taken on May 7, while the patient was at Passaic General Hospital, revealed that even then a well-defined mass separate from the liver could be noticed extending 2 to 3 cm. below the costal margin. This mass was superior and anterior to the left kidney, the latter being in a low position.

During her hospital stay, the patient had a low grade fever, temperature 99 to 101 F, with a few spikes to 103 F. Physical examination again disclosed rales over both lung bases. Since the cause of the splenomegaly could not be determined, a splenic aspiration was performed with a Vim-Silverman needle. There was no difficulty, and no untoward reaction followed. The specimen obtained consisted of a cylinder of splenic tissue measuring 1 cm. in length and 0.1 cm. in diameter. Microscopic sections showed recognizable splenic tissue in one area, while most of the material was composed of capillary vascular spaces lined with elongated cells. These elongated cells were irregular and showed marked nuclear atypism. A diagnosis of primary hemangiosarcoma of the spleen was made, and the patient was prepared for operation. She received six transfusions and tolerated them without reaction. Her preoperative count rose to 4 million red blood cells and 11 gm. hemoglobin. Splenectomy was performed by a transabdominal approach. The removed spleen was greatly enlarged, weighed 2,875 gm., and measured 30 by 17 by 12 cm. The vessels had been ligated close to the hilus. The spleen was covered by a thin capsule, and the outer surface was uneven and mottled. Grayish-pink areas were intermingled with bluish-red ones. On sectioning, the organ had a variegated appearance; dark red, mostly round areas, varying in size from 0.2 to 5 cm. in diameter, were intermingled with more grayish-pink tissue. Within the grayish-pink tissue, occasional lymph follicles and trabeculas could be seen with the naked eye. Although multiple sections revealed diffuse replacement of the splenic structures by tumor tissue, the basic architecture of the spleen could be recognized in many fields, since trabeculas as well as occasional lymph follicles could be identified. The tumor tissue consisted of elongated cells that, in many places, surrounded vascular spaces filled with red blood cells. These vascular spaces were mostly elongated but occasionally oval or round. In some areas, the structure was hemangiomatous and without evidence of sarcomatous transformation. In other areas the cells were irregular and showed considerable nuclear atypism. While abnormal mitotic figures were scarce, multinucleated tumor giant cells were frequent. In some places, tumor cells formed dense sheets of tissue approximating the appearance of a fibrosarcoma. There were a few areas of necrosis, but areas of diffuse blood extravasation were commonest. In the latter, the structure of the tumor could hardly be recognized. Sections made through the large vessels at the hilus revealed moderate sclerosis of the splenic artery. The microscopic findings confirmed the diagnosis of primary hemangiosarcoma of the spleen.

Postoperatively the patient's recovery was stormy and was characterized by an episode of pulmonary infarction. She was doing fairly well when, suddenly, marked dyspnea developed. The patient died on Dec. 7, 1951, the 25th postoperative day, presumably because of massive pulmonary embolization. Permission for autopsy was not obtained.

COMMENT

Primary sarcoma of the spleen is unquestionably a rare condition.[4] Gordon and Paley [4a] collected 189 reported instances, of which 42 were lymphosarcomas. One should, however, not lose sight of the fact that, as in many other rare conditions, considerably more cases have been observed than were later published. Among the primary sarcomas of the spleen, hemangiosarcoma is but one. Wright [4b] in 1949 reported one such case and reviewed the literature. He accepted only six cases as belonging to this group. An additional instance has been reported recently by Story and Gibb.[4c] The case reported here fulfills the criteria for this diagnosis, since the splenic tumor was characterized by well-defined vascular channels and had the typical microscopic appearance of a sarcoma.

Clinical characteristics of primary malignant changes in the spleen are not clear cut. The following features should be present (*a*) a rapidly growing tumor in the splenic region; (*b*) persistent or intermittent pain in the splenic region; (*c*) loss of weight; (*d*) downward displacement of the left kidney by the tumor as visualized in retrograde pyelography and/or medial displacement of the splenic flexure seen on barium enema; and (*e*) anemia and often thrombocytopenia.[5] The finding of marked anemia, which may have a certain similarity to pernicious anemia, has been frequently reported. A profound anemia was present in this case. It must be realized, however, that all the clinical signs

4. (*a*) Gordon, J. D., and Paley, D. H.: Primary Malignant Tumors of the Spleen: Statistical Review and Report of a Case of Lymphosarcoma, Surgery **29**: 907-913 (June) 1951. (*b*) Wright, M.: Hemangiosarcoma of the Spleen, Arch. Path. **47**: 180-190 (Feb.) 1949. (*c*) Story, P., and Gibb, W. E.: Sarcoma of the Spleen, Brit. M. J. **1**: 990-991 (May 10) 1952.

5. Laforet, E. G.: Primary Sarcoma of the Spleen: Report of a Case with Fatal Spontaneous Rupture, Am. J. Clin. Path. **22**: 46-55 (Jan.) 1952.

given are not unequivocal. In this case, diagnostic possibilities, such as chronic myeloid leukemia, Hodgkin's disease, Gaucher's disease, liver cirrhosis with splenomegaly, and splenic vein thrombosis, were considered unlikely in view of the clinical considerations, x-ray findings, and laboratory tests. So-called agnogenic myeloid metaplasia, often associated with osteosclerosis, was another diagnostic possibility, but x-rays of the long bones and the absence of nucleated red blood cells in examinations of smears from the peripheral blood did not give evidence of osteosclerosis. Splenic puncture was resorted to only after all other diagnostic procedures had been exhausted. Examination of smears made from the splenic aspiration did not permit a diagnosis, while tissue sections proved to be of conclusive value. This point has been stressed by Block,[6] who was able to make a diagnosis of sarcoid in sections of material obtained from a needle biopsy of the spleen. I support the contention of Block and Jacobson [2] that, whenever feasible, splenic tissue should not only be smeared on slides but fixed and prepared for tissue sections. It is my belief that splenic biopsy should be performed only in cases in which no other diagnostic procedure has led to conclusive results. Although no dangerous complications have been recorded in several recent reports,[3] Block and Jacobson [2] observed two deaths following splenic puncture. In several other patients, intra-abdominal hemorrhage occurred but, fortunately, did not lead to serious complications. Some years ago I performed a splenic aspiration, using only a thin needle and syringe, on a patient with subacute leukemia. It was proved at autopsy that the aspiration was followed by a hemorrhage. It would seem that splenic puncture represents an unnecessary risk, in cases in which the diagnosis had been established by other means. It is superfluous to search for Gaucher cells in splenic aspirations when they have already been found in bone marrow studies. The diseased spleen is particularly apt to rupture either spontaneously or on slight provocation; one has only to consider the reported instances of splenic rupture after trivial injury or on palpation of the spleen in patients with infectious mononucleosis.[7] Spontaneous hemorrhage without any obvious external cause has been repeatedly reported in patients in which the spleen was the site of new growth.[5] It is suggested that splenic puncture be performed only if it can be followed by surgical intervention if intra-abdominal hemorrhage should occur.

SUMMARY

A case of primary hemangiosarcoma of the spleen is described. The diagnosis was made preoperatively by splenic aspiration. Reference is made to the danger of splenic puncture, and it is suggested that this procedure be employed only if all other available diagnostic procedures have been exhausted. In addition, it should be done only if it can be followed by exploratory laparotomy and possible splenectomy if intra-abdominal hemorrhage should occur.

133 Bushwick Ave.

6. Block, M.: Sarcoid Diagnosed by Needle Biopsy of the Spleen: Report of a Case, J. A. M. A. **149**: 748-750 (June 21) 1952.

7. Smith, E. B., and Custer, R. P.: Rupture of Spleen in Infectious Mononucleosis: Clinicopathologic Report of 7 Cases, Blood **1**: 317-333 (July) 1946. Timmes, J. J.; Averill, J. H., and Metcalfe, J.: Splenic Rupture in Infectious Mononucleosis, New England J. Med. **239**: 173-175 (July 29) 1948.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

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The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

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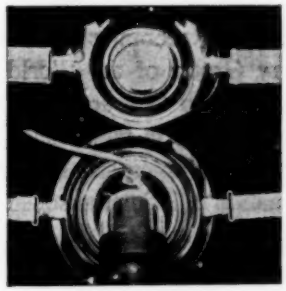

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PSYCHIATRY IN INDUSTRY

Although it is only 33 years [1] since the initial suggestion that a psychiatrist could aid materially in solving the problems of industrial unrest, varied methodologies have been used to assist the emotionally upset worker to meet the psychological demands of our contemporary industrialization. In the Tennessee Valley Authority [2] a full-time psychiatrist developed a mental hygiene service that offered a consultation program, supervisory training in human relations, studies of problem-prone employee groups, and staff functions in the form of advice to personnel, management, and labor. The British have established the Roffey Park Rehabilitation Centre,[3] supported by many industries, where efforts are aimed at reversing the desocialization in work and communal activities evidenced by the employee-patients. Recommendations of a Mental Health in Industry Group of the World Federation for Mental Health [4] pointed to a cross-cultural approach on an international scale in which such skills as psychiatry, anthropology, economics, and social work would be utilized in the creation of industrial social therapy to rectify ills of workers that are manifested on the job.

Industrial medicine in England [5] has adopted the values of psychiatry for use in occupational selection, rehabilitation and resettlement, supervision of the young factory worker, industrial training, and the improvement of morale. Personnel directors [6] have secured the services of psychologists and social workers to orient management bodies in the mechanisms needed for more satisfying living. At Cornell University's New York State School of Industrial and Labor Relations a formal training program [7] in industrial psychiatry has been inaugurated in which one of the objectives was to pool the resources of the specialists in individual adjustment and the experts in group dynamics. The physician-trainee in his two years studies human relations, social psychology, cultural anthropology, economics, industrial management, collective bargaining, and labor legislation.

Summarizing today's thinking is a report of the Committee on Psychiatry in Industry of the Group for the Advancement of Psychiatry.[8] Composed of nine psychiatrists who have had service in industry, the committee has delineated the functions and qualifications of the psychiatrist in this new setting and has outlined his relationships with the groups that make up the manufacturing enterprise. The addition of this skill to occupational medicine's in-plant services has been slowed by the association of psychiatrists with the traditional care of mental patients rather than with mental health improvement of average community citizens. The task of this newcomer to industry is to integrate and coordinate "the contributions of medicine, clinical psychiatry, psychology, social work, and education, so that they can be made to bear effectively on the personality adjustment and productivity of workers and their leaders." [8] Of two chief functions of limited treatment and prevention, the latter is the more important.

As consultant to management the psychiatrist may help an industry to work out those unconscious and emotional factors that inhibit production and create social stresses, dissatisfactions, and illness. Apart from possessing the documentary evidence of training and diplomate status, he should be accepted by everyone in the company. He should be humble, understandable, and able to work within the policy framework of the organization, and with groups. Demonstrating maturity and tolerance, he must be able to confer graciously and effectively, a test of his "adjustment flexibility."

Connection with industry implies a reeducation of staff physicians who may be only slightly oriented in psychological medicine. Contacts with the trade unions and the community round out the full contribution of the psychiatrist. Transmittal to the local physicians of some of his formulations about the handling and mishandling of emotionally disturbed employees may forestall the time-honored advice to their neurotically ill patients to "take a month or two off from work and go South," or to "request a transfer." Experience has shown that the neurotic is better off working, unless extremely ill, and a transfer may actually intensify a neurosis when the personality factor remains unstudied.

With the demands on today's industries for greater production, emotionally marginal employees may be unable to tolerate the stresses of deadlines, overtime, boom towns, and particularly impaired human relations,

1. Southard, E. E.: The Modern Specialist in Unrest—Place of the Psychiatrist in Industry, Indust. Management **59**: 462 (June) 1920.
2. McAtee, O. B.: The Establishment and Function of an Industrial Mental Hygiene Service, Am. J. Psychiat. **107**: 623 (Feb.) 1951.
3. Ling, T. M., and Wilson, V. A.: A Survey of Occupational Problems in a Neurosis Centre, Brit. M. J. **2**: 558 (Sept. 6) 1952.
4. Mental Health in Industry, Bull. World Federation for Mental Health **2**: 12 (Dec.) 1950.
5. Stewart, D.: Psychiatry as Applied to Occupational Health, Lancet **1**: 737 (May 15) 1948.
6. Hayworth, T., and Nolan, J.: Mental Health for Employees, Personnel J. **29**: 52 (June) 1949.
7. Industrial Psychiatry, Human Organization **8**: 29 (Winter) 1949.
8. Application of Psychiatry to Industry, Report No. 20, Topeka, Group for the Advancement of Psychiatry, (July) 1951.

the by-product of the plant that makes personal problems subordinate to technical problems. The challenge in this field requires the flexible and realistic adaptation of the clinical, advisory, therapeutic, and, especially, the educational functions of psychiatry. The psychiatrist desirous of exploring new social situations in group living will find industry a well-equipped laboratory.

TRICHINOSIS

In spite of the fact that trichinosis is readily preventable, it continues to occur in the United States with disturbing frequency. A recent estimate [1] made from autopsy studies indicates that at least one of every six persons in this country, or about 25 million persons, harbor the parasite responsible for this disease and that each year about 350,000 persons acquire new infections. While most of those infected show no symptoms, about 16,000 persons each year may be expected to ingest enough of the parasites to produce clinically detectable trichinosis. About 5% of those with symptomatic infections die. Because the disease is difficult to diagnose, many cases probably go unrecognized, and others are not reported. On the average only 336 new cases are reported to health departments annually.

In recognition of the importance of this disease in man and in swine, the source of almost all human trichinosis, seven national medical or veterinary organizations and one university group [2] recently sponsored a national conference on trichinosis [3] to discuss methods of trichinosis control. Two approaches to the problem were explored. The first involves the prevention of trichinosis in man by the destruction of viable larvae of Trichinella spiralis in pork before it is consumed. The second is concerned with the prevention of trichinosis in swine. While the second approach would appear to be the most efficacious in the long run, both are important at present.

The destruction of T. spiralis in pork has in the past been accomplished largely by thorough cooking, curing, or refrigeration for 20 days as prescribed by federal regulations. Evidence is now accumulating that rapid freezing to –35 C, or freezing and storage for three days at –18 C may be equally effective.[4] X-rays or gamma rays may also be used to render trichina larvae in pork incapable of reproduction.[5] By means of the penetrating gamma rays of cobalt 60, it may be possible to irradiate whole hog carcasses at once, thus making them safe for human consumption. Research is now progressing on this problem.

The prevention of trichinosis in swine depends chiefly on the elimination from the feed of these animals of infected, uncooked pork scraps, such as those frequently found in garbage, table scraps, swill, and similar material. Contaminated garbage is perhaps the major source of infection. In areas where it is used for feed, the incidence of Trichinella infection in hogs is 11.5%, as compared with 0.6% in other areas.[6] This incidence can be reduced to negligible proportions by the cooking of garbage at 100 C for 30 minutes, which destroys all larvae of T. spiralis. The effectiveness of this measure has been clearly demonstrated in Canada and Great Britain, where cooking of all garbage fed to hogs is required by law. The cooking of garbage also destroys the causative organisms of a number of other diseases of swine, such as hog cholera, vesicular exanthema, foot and mouth disease, salmonellosis, tuberculosis, and brucellosis, so that it is of considerable economic and public health importance. The elimination of rats from hog feeding areas may be of some additional value, since many rats harbor T. spiralis. It is no longer believed, however, that rats are an important source of swine trichinosis under ordinary circumstances in this country.

A nationwide program for the control and ultimate eradication of trichinosis in man and animals has been recommended by the National Conference on Trichinosis. This includes: (1) the passage of state laws requiring that all garbage and offal fed to hogs be cooked at licensed cooking establishments where adequate recording controls are maintained; (2) enforcement by the U. S. Public Health Service of the section of the Interstate Quarantine Regulations that prohibits the shipping of uncooked garbage across state lines for the purpose of feeding swine; (3) the prohibition by federal law of the moving of live hogs or raw pork out of any state that does not have and enforce garbage cooking regulations; (4) the education of the farmer to remove all raw pork scraps and offal from his own household garbage to be fed to swine for his own use; (5) the dissemination of information on incineration and alternative methods for garbage disposal; (6) the prohibition by state law of the sale of garbage-fed hogs for slaughter at plants not having federal inspection or its equivalent; (7) continuation of the program of informing housewives and other food handlers of the necessity for cooking all pork and pork products thoroughly; (8) promotion of further research on the use of ionizing radiation and quick freezing methods for the destruction of Trichinella in pork; (9) improvement of diagnostic procedures to reveal the number of infections in man and hogs.

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1. Link, V. B.: Trichinosis: A National Problem, read before the National Conference on Trichinosis, Chicago, Dec. 15, 1952. Gould, S. E.: Trichinosis in Man and Its Prevention, read before the National Conference on Trichinosis, Chicago, Dec. 15, 1952.

2. The American Medical Association, United States Public Health Service, Association of State and Territorial Health Officers, American Society of Clinical Pathologists, American Veterinary Medical Association, American Board of Veterinary Public Health, Conference of Public Health Veterinarians, and Michigan-Memorial Phoenix Project, University of Michigan.

3. Held at the headquarters of the American Medical Association, Chicago, Dec. 15, 1952.

4. Augustine, D. L.: Low-Temperature Treatment of Pork, read before the National Conference on Trichinosis, Chicago, Dec. 15, 1952.

5. Gomberg, H. J., and Gould, S. E.: Effect of Ionizing Radiation on Trichina Larvae, read before the National Conference on Trichinosis, Chicago, Dec. 15, 1952.

6. Schwartz, B.: Incidence of Trichinae in Swine, read before the National Conference on Trichinosis, Chicago, Dec. 15, 1952.

ORGANIZATION SECTION

A. M. A. REGISTRATION INFORMATION

To facilitate registration at the New York meeting, June 1-5, registration cards are being mailed to members in the following states: Connecticut, Delaware, Maryland, Maine, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Rhode Island, Pennsylvania, Vermont, Virginia, West Virginia, and Washington, D. C. Cards have also been sent to physicians in other states who have made specific requests.

Any of the following registration cards if completely filled in will be accepted at all registration windows at the Grand Central Palace: yellow or buff registration cards; white registration cards with 1953 pocket card or A. M. A. receipt for payment of dues; residents', interns', nurses', technicians', students' cards, and physicians' guest cards if filled in and endorsed by the hospital administrator or superintendent, and yellow scientific exhibit cards.

Members may obtain registration cards at the Registration Bureau (Grand Central Palace) or by writing to the Membership-Subscription Department, 535 N. Dearborn St., Chicago 10, Ill. There will be an advance registration (Grand Central Palace) Sunday, May 31, with hours from 10:00 a. m. to 4:00 p. m. The hours for registration from Monday through Thursday will be from 8:30 a. m. to 5:30 p. m. and Friday from 8:30 until 12:00 noon (Grand Central Palace).

A subscription information window will be available at the Grand Central Palace for answering all inquiries, accepting orders, changes of address, etc., for THE JOURNAL and Special Journals. For convenience and a speedy registration, the registration card should be completed, with the name of the registrant's hotel, his guests, and the name of the scientific sections with which he wishes to be affiliated.

HOTEL RESERVATIONS FOR NEW YORK MEETING

All physicians who are planning to attend the annual meeting of the American Medical Association in New York City, June 1-5, are urged to make their hotel reservations as soon as possible before all the desirable rooms have been taken. Write direct to Dr. Edward P. Flood, Chairman, American Medical Association, Subcommittee on Hotels, 500 Park Avenue, New York 22, New York. For an application blank for hotel accommodations, see advertising pages 70 and 71 in this issue of THE JOURNAL.

THEATER AND BASEBALL TICKET RESERVATIONS IN NEW YORK

For the convenience of those who wish to see baseball games and Broadway plays when they are not occupied with official meetings or attending exhibits during the Annual Meeting of the American Medical Association in New York, June 1 to 5, the Local Committee on Arrangements has arranged for tickets to be secured through a reliable theater ticket agency. Requests for tickets must be sent directly to Blanche Furman Theatre Ticket Agency, 236 West 44th Street, Room 705, New York 18. In requesting tickets, the following information should be given: first, second, and third choice of play or game; date and time of day; number of tickets desired, and price range.

THE BALLET DURING THE NEW YORK MEETING

The New York City Ballet season will be on when the annual session meets in New York. Performances will be given each evening except Monday, with matinees on Saturday and Sunday. Tickets may be obtained from the New York City Center, 131 West 55th Street, New York 19, N. Y. Top price, $3.60 evenings, $3.00 for matinees.

EXHIBITION FOR MEDICAL HISTORIANS AND BIBLIOPHILES AT THE NEW YORK MEETING

As part of the city-wide participation in the annual meeting of the American Medical Association in New York, June 1 to 5, 1953, two special exhibits have been planned for physicians interested in the early medical history of the New York area and in rare books illustrating medical history in general. At the New York Historial Society, 170 Central Park West, at 77th Street, there will be an exhibition, "The Health Art in Old New York." The exhibition will consist of portraits and engravings of prominent medical men, doctoral theses, and medical equipment. The exhibit will be open daily and Sunday from 1 to 5 p. m. and on Saturday from 10 a. m. to 5 p. m. It will be closed on Monday.

At the New York Academy of Medicine, Fifth Avenue at 103rd Street, the medical visitor will enjoy studying the operations of the second largest medical library in the United States, which, in addition to books, has brought together outstanding collections of medical illustrations, portraits, and documents. The periodicals room houses current journals from every corner of the civilized world. In the main entrance hall, the staff has prepared a display of documents, manuscripts, autograph letters, and old medical books illustrating the practice of medicine in New York City before 1825. In the main reading room the famous Alfred M. Hellman collection of early obstetrical works will be shown. In the rare book room may be found the choicest items in the collections, ranging from the Edwin Smith Surgical Papyrus to a fragment of Sir Alexander Fleming's original penicillin culture. The Library is open from 9 a. m. to 5 p. m. daily except Sundays.

DEMAND FOR A. M. A. EXHIBITS

American Medical Association exhibits are displayed in every part of the country, not only at the A. M. A.'s own annual and clinical sessions but also at home and food shows, farm shows, automobile shows, state and county fairs, and over television. Thus far in 1953, there have been 130 exhibition days in seven states, and bookings now on hand total 187 days of showings in 21 states. The demand for the exhibit—"Testing the Drinking Driver"—has been so great that a second copy was prepared. Last year one of these copies was shown before 19 different groups in 9 states, and the other copy was shown before 22 groups in 11 states. All bookings are handled through the Bureau of Exhibits at A. M. A. headquarters.

The Bureau of Exhibits announces that two new exhibits will be available for showing at state medical society meetings this fall. One exhibit is "Accidental Poisoning in Children," from the Committee on Pesticides, and the second is "A Medical Service Program for Your Community," from the Council on Medical Service. When shown at state medical society meetings, personnel from the American Medical Association will accompany the exhibits as demonstrators.

The exhibit "A Medical Service Program for Your Community" includes care of the chronically ill, heart disease, cancer detection, tuberculosis case finding, emergency call plans, multiple sclerosis, health councils, arthritis, voluntary health insurance, home care, grievance committees, maternal and child care, public health, hospital construction, rehabilitation, physician placement, and indigent care.

The exhibit "Accidental Poisoning in Children" is based on authentic fatal accident cases. Emphasis is placed on the focal point of danger for such accidents in the home, in the yard, and in particular farm locations. Precautions for preventing accidental poisoning are graphically portrayed. This exhibit is suitable for showing also at state and county fairs, food and home shows, and similar events. Each exhibit requires a space

10 feet long and 6 feet deep. If desired, the exhibits can be shown in an extended fashion of 20 feet long and about 3 feet deep. Requests for bookings will be received by the Bureau of Exhibits for showing after June 15.

FILMS FOR A. M. A. MEETING

In addition to the films listed in the Convention Number of THE JOURNAL, the following pictures will be shown on the motion picture program of the June meeting. They will be exhibited in the Bowman Room of the Biltmore Hotel.

The Brodie Craniopagus Twins
OSCAR SUGAR, HERBERT J. GROSSMAN, and PAUL W. GREELEY, Chicago

Subtotal Gastrectomy
JOEL W. BAKER, Seattle

Ureteral Intestinal Anastomosis by Submucosal Tunnel and by Open Method
FRANK HINMAN and FRANK HINMAN JR., San Francisco

Some Aspects of Accessible Cancer—Rectum
SIR STANFORD CADE, MALCOLM DONALDSON, and G. F. STEBBING, British Ministry of Health

Thoracolumbar Sympathectomy
J. NORMAN O'NEILL, Los Angeles

Principles of Reduction
VETERANS ADMINISTRATION

The Kronlein Operation
ALGERNON B. REESE, New York

Enzyme Therapy with Varidase
RUTLEDGE HOWARD, New York

The Story of Lucy
HENRY H. KESSLER, Newark, N. J.

Artificial Respiration
U. S. COAST GUARD

Revascularization of the Myocardium for the Treatment of Coronary Heart Disease
M. S. MAZEL, Chicago

Congenital Malformations of the Heart, Part III. Cyanotic Congenital Heart Disease
ROBERT F. RUSHMER, Seattle

Patent Ductus Arteriosus
GEORGE H. HUMPHREYS II, New York

Pulmonary Valvuloplasty Under Direct Vision with the Aid of the Mechanical Heart
F. D. DODRILL, Detroit

Intra-Articular Injections of Hydrocortisone
WILLIAM B. RAWLS, New York

Regional Analgesia
DANIEL C. MOORE and JOHN J. BONICA, Seattle and Tacoma

"YOU AND THE WORLD" ON CBS

Some of the country's leading medical authorities will be guests of Dwight Cook on the nationwide Columbia Broadcasting System series, "You and the World," May 4 through May 22. The American Medical Association has cooperated with the CBS department of public affairs in securing suitable authorities to discuss progress in the various fields of medicine. The series is broadcast each weekday at 6:15 p. m., EDST, from New York.

FEDERAL MEDICAL LEGISLATION

To Incorporate the National Fund for Medical Education

Senator Taft (R., Ohio) in S. 1748 would give a federal charter to the National Fund for Medical Education. At present the fund is organized only under the laws of the State of New York and has been collecting private funds from physicians, nonmedical groups, and industry to help support schools of medicine. The proposed federal corporation would have the usual corporate powers, such as the use of a seal, the right to sue and be sued, the right to receive real and personal property, and the right to make disposition of the same in accordance with the purposes of the corporation. An annual audit would be filed with Congress. This measure was referred to the Judiciary Committee.

Study of Educational and Philanthropic Foundations

Congressman Reece (R., Tenn.) in H. Res. 217 would create a special committee of five members of the House of Representatives to "conduct a full and complete investigation and study of educational and philanthropic foundations and other comparable organizations which are exempt from Federal income taxation to determine if any foundations and organizations are using their resources for purposes other than the purposes for which they were established, and especially to determine which such foundations and organizations are using their resources for un-American and subversive activities; for political purposes; propaganda, or attempts to influence legislation." The committee would be similar to the Cox Committee of the last Congress. The resolution was referred to the Rules Committee.

Doctor Draft

Senator Potter (R., Mich.) in S. 1747 proposes to limit the required service of physicians and dentists who have already served a year or more to 17 months instead of 24 months. The measure was referred to the Armed Services Committee.

Public Assistance for Patients in Private Institutions

The present law provides that federal funds may not be used by states for grants to the blind, aged, or permanently and totally disabled public assistance recipients in public medical institutions or to such persons who are tuberculosis or mental patients in medical institutions. Congressman Ford's (R., Mich.) proposal, H. R. 4676, would permit payment of such federal funds to the above three classes of recipients if they are tuberculosis or mental patients in private, not public, institutions. The bill was referred to the Ways and Means Committee.

National Science Foundation

Congressman Wolverton (R., N. J.) in H. R. 4689 would amend the National Science Foundation Act of 1950 to remove the 15 million dollar annual appropriations ceiling for the foundation, and reduce from 13 to 8 the number of board members needed to constitute a quorum. This measure is identical with S. 977 (Senator Smith of New Jersey) that was previously reported. It was referred to the Interstate and Foreign Commerce Committee.

STATE MEDICAL LEGISLATION

Connecticut

Bills Introduced.—S. J. R. 38, proposes the creation of a commission to conduct a study of the **establishment of medical, dental, and veterinary colleges** on a New England regional basis. S. 301, proposes to make it unlawful for an **epileptic** to marry.

Florida

Bills Introduced.—H. 515, proposes the enactment of a licensing law for **nursing homes.** H. 535, proposes to authorize the state board of osteopathic examiners to pass upon the **good standing and reputability of any osteopathic school or college** and determine those which maintain a standard of training sufficient to admit their graduates to the exami-

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The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

nations given by the board. The board would also be authorized to pass upon the standing and reputability of osteopathic hospitals. H. 571, proposes the creation and establishment of a state hospital for the care and treatment of **mentally ill persons.** S. 333, proposes the establishment of an **anatomical board** to acquire dead human bodies and distribute them to medical and dental schools and teaching hospitals for the promotion of medical science.

Illinois

Bills Introduced.—S. 368, proposes that **optometrists employed by corporations** shall not, as the agent or employee of any unlicensed person or corporation, practice optometry in any manner whereby any charge or compensation for optometric services is received by such unlicensed person or corporation. S. 369, to amend the law relating to optometry, proposes that the law shall not be construed to permit or authorize any unlicensed person, **firm, or corporation to practice optometry** by or through any registered optometrist or physician acting as the agent or employee of any such unlicensed person or corporation. S. 381, proposes that the **splitting of or attempting to split fees** for medical and surgical services rendered in this state by qualified and licensed persons shall be unlawful and said qualified and licensed persons alleged to be committing or attempting to commit an act of splitting fees shall be guilty of an unethical practice which shall be grounds for revocation of a license.

Kansas

Bills Enacted.—H. C. R. 29, was adopted March 30, 1953. It requests **the Kansas medical society and the Kansas osteopathic association** to immediately proceed to evolve a permanent solution to the problems of licensure and practice rights of doctors of medicine and doctors of osteopathy in the state and to present to the 1955 session of the Kansas legislature a proposed solution to these problems. H. 278, was approved April 2, 1953. It **amends and reenacts the Kansas Food, Drug, and Cosmetic Act.** It provides, among other things, that preparations containing any quantity of narcotic or hypnotic substance alpha-eucaine, barbituric acid, beta-eucaine, bromal, cannabis, carbromal, chloral, coca, cocaine, codeine, heroin, marihuana, morphine, opium, paraldehyde, peyote, or sulphonmethane, or any chemical derivative of such substance, which has been found to be and has been designated as habit-forming, must contain a label with the statement that it is habit-forming. The law further provides that such habit-forming drugs may be sold only upon a written prescription of a physician, dentist, or veterinarian or an oral prescription of a physician, dentist, or veterinarian, which must be reduced promptly to writing by the pharmacist. H. 329, was approved April 2, 1953. It provides for the creation of a **commission on alcoholism** to study the problems of alcoholism, including methods and facilities available for the care, custody, detention, treatment, employment, and rehabilitation of persons addicted to the intemperate use of spiritous or intoxicating liquors and to provide for research into factors leading to alcoholism. H. 449, was approved March 28, 1953. It authorizes and directs the establishment of a **treatment center** to provide for study, treatment and care and for research in the methods of treatment of **emotionally, mentally, and socially disturbed children.**

Massachusetts

Bill Introduced.—H. 2605, proposes to authorize the organization by two or more municipalities of **regional health districts** with a regional board of health, a director of health, and a permanent staff.

Michigan

Bill Introduced.—H. R. 32, proposes the creation of a special committee to investigate the conditions in **privately owned hospitals in Wayne County** and report its findings and recommendations to the House of Representatives.

Minnesota

Bills Enacted.—H. 12, has become Ch. 274 of the laws of 1953. It provides for the awarding of **scholarships to student nurses** enrolled in a school of nursing which provides students with an educational experience in a rural or state hospital for the mentally ill. It also provides that the recipient of any scholarship provided under this act must agree to accept an educational experience in a rural hospital or a state hospital for the mentally ill and must further agree to practice the profession of nursing for at least one year immediately after graduation in the state of Minnesota. H. 384, has become Ch. 431 of the laws of 1953. It amends the narcotic act by **defining narcotic drug** as including drugs which are hereafter included under the federal narcotic law and found by the state board of health after reasonable notice an opportunity for hearing to have an addiction-forming or addiction-sustaining liability similar to morphine or cocaine. H. 1161, has become Ch. 439 of the laws of 1953. It amends the workmen's compensation act by authorizing an employee to receive **Christian Science treatment** in lieu of medical treatment, under certain circumstances.

Missouri

Bills Introduced.—H. 449, proposes the creation of a **state board of naturopathic examiners** and defines naturopathy as a system of diagnosis and treatment for the prevention, alleviation, and correction of human ailments, diseases, and physical conditions by the use of natural methods consisting of air, light, heat, water, electricity, manual manipulation, the proper use of diet, minerals, vitamins, and other substances found in and required by the human body. H. 450, proposes to prohibit the imposition of **license fees upon the practice of medicine** and certain other professional livelihoods. H. 454, proposes the creation of a **state board of naturopathic examiners** and defines naturopathy as the natural healing science utilizing only specific substances of the same organism or organ or of related species that can bring about a natural reaction. S. 422, proposes regulations requiring the **licensing and inspection of hospitals.** S. 423, proposes the creation of a temporary study committee to make a comprehensive study and survey of the schools in the state of Missouri teaching the branches of healing hereinafter mentioned and of the present laws of the state governing the licensure of professional practice relating to and including the diagnosis, treatment, operation or prescription for any human disease, pain, injury, deformity or physical or mental condition and including the laws relating to **medicine, surgery, midwifery, optometry, chiropractic, dentistry, pharmacy, nursing, chiropody, osteopathy, and physiotherapy** to consider the necessity or desirability of extending, adding to, or otherwise revising the present laws of the state to require the licensing of other practices related to human health and physical or mental well-being.

New Hampshire

Bill Introduced.—H. J. R. 49, proposes the creation of an interim commission to study and report on all phases of nursing with particular reference to the possibilities of **broadening the concepts of nursing education.**

New York

Bills Enacted.—A. R. 56, was adopted March 21, 1953. It provides for a special legislative commission to make a survey and study of the social and educational problems of individuals afflicted with **cerebral palsy.** A. 2289, has become Ch. 682 of the laws of 1953. It amends the education law by authorizing the revocation, suspension, or annulment of licenses of physicians upon proof that a physician is or has been **guilty of unprofessional conduct.** S. 2114 has become Ch. 802 of the laws of 1953. It amends the law relating to the **practice of medicine by interns and residents** by providing that each physician appointed as a member of the staff of any hospital except an intern or a physician who is a full-time employee of the state or municipality in a hospital or institution under the supervision of a duly licensed physician or a resident physician who is in this country under a nonimmigration visa for the continuation of medical study under the supervision of a duly licensed physician in a hospital shall on and after July 1, 1953, unless such physician is duly licensed in the state, be in possession of a temporary certificate issued by the department upon payment of a fee of $10 certifying that he is eligible for admission to the medical licensing examination in the state. Such certification shall be valid for a period of not exceeding two years. The law also provides that on or before July 1, 1953, each employer of a physician shall file with the department a list showing the names of all physicians employed by such employer, except interns, and thereafter, each such employer shall notify the department in writing of each new appointment of physician except interns, within 10 days after making such appointment. S. 2735, has become Ch. 634 of the laws of 1953. It amends the law relating to medical service plans by authorizing **reimbursement for dental care** provided through duly licensed dentists.

North Carolina

Bills Introduced.—H. 139, proposes an appropriation for the purpose of encouraging medical students and student nurses to **specialize in psychiatry.** H. 1170, proposes that no person, firm, or corporation operating or conducting a hospital in whole or in part for the care and treatment of charity patients shall be immune against **suit for damages suffered by any patient accepted and received by such hospital,** but such owners or operators of such **hospitals shall be liable in damages** for injury to person or property proximately caused by the negligence of the owners or operators of such hospital or their employees or agents under the same rules which apply generally in actions founded on allegations of negligence. H. 1185, proposes an appropriation to be used for education as to the **dangers of alcoholic beverages** and for prevention of alcoholism and other emotional disorders.

Bill Enacted.—H. 630, was ratified April 13, 1953. It provides that no operator's or chauffeur's license shall be issued to a person who is a habitual drunkard or is a habitual user of narcotic drugs or barbiturates, whether or not such use be in accordance with the prescription of a physician.

Ohio

Bills Introduced.—H. 364, proposes to require physicians appointed by the county commissioners to furnish medical relief for inmates of county homes to make **quarterly reports** in writing to the board showing the nature and extent of the services rendered, to whom rendered, and the character of the diseases treated. H. 576, to amend the law relating to **privileged communications,** proposes to authorize a physician to testify if the patient is deceased and the surviving spouse or executor or administrator of the estate of the deceased patient has expressly consented to such testimony. H. 709, proposes to direct the director of health to establish and administer a program of assistance to hospitals operating the schools for the training of students aspiring to the title of **registered nurse.** H. 781, to amend the medical practice act relating to requirements for admission to medical examination, proposes to require that a **graduate of an approved medical school, or of a foreign medical school,** who submits satisfactory evidence to the board that he has taken postgraduate instruction or internship or residency amounting in the aggregate to one year in an institution or hospital approved by the board may be admitted to the examination. S. 177, proposes the establishment within the department of health of a **division of alcoholism** which shall, among other things, promote or conduct studies on alcoholism and promote or conduct educational and preventive programs on alcoholism. S. 227, proposes the creation of a **department of occupational licensing.**

Oklahoma

Bills Introduced.—H. 1146, proposes that the **practice of medicine,** including the procedures, methods, practices, and processes used in administering and performing intravenous injections, blood extractions, and minor surgery **by office girls, receptionists, nurses aids, practical nurses,** and all other persons unlicensed to practice medicine and to perform and administer same and whether such practice be done by, through, under, and/or in concert with someone licensed to practice medicine shall constitute a felony. S. 61, proposes regulations relating to the examination and the enforced hospitalization of recalcitrant **tuberculosis** patients.

Oregon

Bills enacted.—H. 128, has become Ch. 342 of the laws of 1953. It amends the law relating to narcotic drugs by, among other things, **defining a narcotic drug** as including drugs to which the federal narcotic laws may now or hereafter apply and also drugs found by the state board of pharmacy, after reasonable notice and opportunity for hearing, to have addiction-forming or addiction-sustaining liability similar to morphine or cocaine. H. 272, was approved April 21, 1953. It requires **applicants for the chiropractic examination** to present evidence of good moral character, to present evidence of having taken for at least two years a liberal arts and/or science study in a college or university approved by the state board of education, prior to matriculation into a chiropractic college and to prove graduation from a chiropractic college requiring actual attendance of four years of at least nine months' each.

Pennsylvania

Bills Introduced.—H. R. 45, proposes the creation of a special unpaid commission to make an investigation and study relative to the number of **mentally retarded children** in the commonwealth and the training facilities and custodial facilities available for their training and care. H. 1137, to amend the **osteopathic practice act,** proposes that after the first of July, 1954, a license to practice osteopathy shall not be issued until the board of osteopathic examiners has received satisfactory evidence that the applicant has completed not less than one year as an intern in a general hospital approved by the board. All interns and residents shall register with the board in a manner prescribed by the board and any person graduating from a legally incorporated reputable college of osteopathy while registered with the board and actually serving as an intern or resident under the supervision of the staff of any hospital approved by the board of osteopathic examiners shall be exempt from the provisions of this proposal. H. 1164, proposes a general revising and consolidating of the laws relating to hospitals and the **licensing of hospitals.** S. 498, proposes the creation of a **state board of chiropody examiners.** H. 1193, proposes the creation of a **state board of psychological examiners.** H. 1194, proposes the creation of a **state board of psychological examiners** and defines the practice of psychology as the rendering for fees or personal profit of any professional service requiring the use of recognized techniques of the science and profession of psychology such as psychological readjustment or the use of standardized psychological tests of mental abilities, aptitudes, and personality characteristics for the purpose of psychological analysis. S. 507, to amend the law relating to the regulation and supervision of nonprofit medical, dental and osteopathic service corporations, proposes to authorize such corporations to include **chiropody services** also. S. 508, proposes certain amendments to the chiropody act, among which is the **definition of chiropody** as the diagnosis of foot ailments and the practice of minor surgery upon the feet, the padding, dressing, and strapping of the feet, the making of models of the feet and palliative and mechanical treatment of functional disturbances of feet, not including the amputation of the leg, foot, or toes or the treatment of systemic diseases of the bones, ligaments, or muscles of the feet or any other part of the body. S. 534, proposes that when it appears to any judge that a reasonable necessity exists for **temporary restraint of one alleged to be mentally ill,** the judge may permit an examination of such person by two qualified physicians and may by proper order directed to any proper person or officer require restraint of the alleged mentally ill person in any suitable place for a period not to exceed 6 hours prior to the examination and 24 hours thereafter.

Rhode Island

Bill Introduced.—H. 981, proposes to require all **physicians to report** within 10 days to the state department of health the name, age, and address of every person diagnosed by him as a case of **epilepsy** or similar disorder characterized by lapses of consciousness.

South Carolina

Bill Introduced.—H. 1443, proposes to make it unlawful for any railroad company or railroad express company to require any employee or applicant for employment to pay **the cost of a medical examination** or the cost of furnishing any record required by such company as a condition of employment.

Tennessee

Bills Enacted.—H. 564, has become Ch. 152 of the public acts of 1953. It provides that **whenever any person dies in a doctor's office,** or any clinic, hospital or state, county or city institution, it shall be unlawful for any doctor, nurse, attendant, orderly, janitor or bookeeper, or anyone to call any undertaker without first making an effort to contact some relative of the deceased, so as to give said relative the right to call an undertaker or crematory of their choice. H.J.R. 39, was approved April 10, 1953. It directs a special council to study, prepare and recommend legislation governing **commitment and/or voluntary admission of mentally ill** and emotionally disturbed persons to state and private hospitals and to provide for their probation and parole, prior to and following hospitalization. H. 905, has become Ch. 125 of the laws of 1953. It provides for the creation of a service within the division of medical care to be known as **hospital service for the indigent,** the purpose of which is to provide hospitalization for medically indigent persons who are residents of the state, the hospital charges to be limited to the nonprofit basic costs of the hospitalization. H. 1032, has become Ch. 169 of the public acts of 1953. It provides for the creation of a Tennessee **board of examiners in psychology** for the purpose of examining and licensing psychological examiners and psychologists. A psychological examiner is defined as one who holds himself out as performing services involving the application of recognized principles, methods, and procedures of the science and profession of psychology, such as interviewing or administering and interpreting tests of mental abilities, aptitudes, interests, and personality characteristics, for such purposes as psychological evaluation or for educational or vocational selection, guidance, or placement. The psycological examiner practices the following only under qualified supervision: over-all personality appraisal or classification, personality counseling, psychotherapy, or personality readjustment techniques. A psychologist is one who renders services involving the application of recognized principles, methods, and procedures of the science and profession of psychology, such as interviewing, administering and interpreting tests of mental abilities, aptitudes, interests, and personality characteristics, for such purposes as psychological evaluation or for educational or vocational selection, guidance, or placement, or for such purposes as overall personality appraisal or classification, personality counseling, psychotherapy or personality readjustment. Nothing in this definition shall be construed as permitting those forms of psychotherapy which involve the administration or prescription of drugs or electroshock or in any way infringing upon the practice of medicine. H. 1065, has become Ch. 166 of the public acts of 1953. It requires every physician who makes a diagnosis of or treats a case of **tuberculosis** to report such case immediately to the county health officer. H. 1093, has become Public Ch. 202 of the laws of 1953. It provides that in a criminal prosecution for driving under the influence of an intoxicant the results of **chemical tests of blood, urine, or breath** made to show the amount of alcohol in the defendant's blood at the time alleged shall be admissible in evidence. S. 163, has become Ch. 111 of the public acts of 1953. It amends the workmen's compensation act by requiring an **employer to designate a group of three or more reputable physicians or surgeons** if available in that community from which an injured employee shall have the privilege of selecting the operating surgeon or the attending physician.

Texas

Bills Introduced.—H. 535, proposes to **exempt physicians from jury service** during the time they are actually engaged in their practice. H. 609 and H. 699 proposes to provide for the **licensing of nursing homes,** convalescent homes, and rest homes. H. 691, proposes to regulate the type of identification or designation which may be used by various **practitioners of the healing arts.** H. 734, proposes to make it unlawful to prevent an appeal to any **licensee whose license has been suspended** and who is aggrieved thereby. S. 303, proposes regulations for the creation of county wide **hospital districts.**

Vermont

Bills Introduced.—HJR. 26, proposes the creation of a **commission on chronic illness and rehabilitation** to make a thorough investigation and study of the extent, nature, and consequences of chronic illness; of the hospitalization and other care and treatment facilities available in the state for such persons and for the aged; and of the adequacy of such facilities and all matters germane thereto. H. 332, proposes certain amendments to the **hospital licensing law,** among which is a proposal that any hospital conducted, maintained, or operated by the United States government or any authorized agency thereof, would not be subject thereto.

Bills Enacted.—H. 147, was approved April 15, 1953. It provides for the regulation and inspection and **licensing of nursing homes,** convalescent homes, and similar institutions providing medical or nursing case. H. 238, was approved April 14, 1953. It requires **every physician attending or treating a case of bullet or gunshot wound,** powder burn, or any other injury arising from or caused by the discharge of a gun, pistol, or other firearm to report such case at once to local law enforcement officials or the state police.

Washington

Bill Introduced.—H. 7X, proposes to require every hospital upon demand being made to render at such hospital **first aid** to any person requiring emergency assistance and proposes to make it a gross misdemeanor for any hospital or physician who fails to render such service upon request.

Bill Enacted.—S. 91, has become Ch. 188 of the laws of 1953. It amends **the law relating to autopsies and postmortem examinations** by providing that the coroner in his discretion make or cause to be made by a competent pathologist, toxicologist, or physician, an autopsy or postmortem in all cases in which death occurred by violence, or suspicious circumstances, or where an inquest is to be held, or where death occurred in prison, jail, or while the person was serving a sentence or where death occurred suddenly or without medical attention or from unnatural causes or under circumstances indicating the possibility of death by the hand of the deceased or through the instrumentality of some other person.

MEDICAL NEWS

ALABAMA

Alumni Seminar.—The Alumni Association of the Medical Department of the University of Alabama will sponsor a seminar at the Medical College of Alabama in Birmingham, May 21-23. Dr. Louis H. Bauer, Hempstead, N. Y., President of the American Medical Association, will be among the speakers. Other out-of-state speakers include: Drs. William H. Anderson, Booneville, Miss.; Harry E. Bacon and Albert Behrend, Philadelphia; Henry Boswell, Sanitorium, Miss.; Haven Emerson and George T. Pack, New York; William G. Hamm, Atlanta, Ga.; Emil Novak, Baltimore; Oscar B. Nugent, Chicago; A. Neal Owens, New Orleans; Jean P. Pratt, Detroit; Edgar R. Pund, Augusta, Ga.; William R. Sandusky, Charlottesville, Va.; Robert L. Sanders and Harwell Wilson, Memphis, Tenn.; and Paul C. Williams, Dallas, Texas. All members of the medical and allied professions are invited.

CALIFORNIA

Quarantine on Mussels.—According to Dr. Wilton L. Halverson, San Francisco, state director of public health, the gathering of mussels for any use but fish bait is prohibited through Oct. 31. Dr. Halverson states that one bite of a mussel can be fatal during the summer, owing to poison produced by a minute organism present in California coastal waters at this time of year. Clams are subject to this poisoning to a lesser degree. White meat of clams is safe if thoroughly cleaned and washed, but all dark parts should be discarded. When sold for fish bait during the quarantine period, mussels must be broken open, and any container from which they are sold must be prominently labeled: "For Fish Bait Only—Unfit for Human Consumption."

Clifford Sweet Lectureship.—Dr. Clement A. Smith of Boston will be visiting lecturer for the second annual Clifford Sweet lectureship at Children's Hospital of the East Bay in Oakland, May 20-22. The lectureship was instituted in 1952 by the medical staff in honor of Dr. Sweet, presently emeritus chief of medicine at Children's Hospital, who was for 30 years its chief of staff. The program, which will be held at the hospital, will culminate with the Sweet lecture Friday evening after a banquet at the Hotel Claremont, Berkeley, where Dr. Smith will lecture on "The Newborn Infant." All sessions will be open to interested physicians. Reservations for the Friday night banquet and lecture may be made through Children's Hospital of the East Bay, 5105 Dover St., Oakland 9.

Personal.—Dr. Elvin H. Stanton, Glendora, has been elected chief of staff at the Pomona Valley Community Hospital. Dr. Stanton previously served as chief of obstetrics and gynecology at the Pomona hospital. He is a past secretary of the Los Angeles County Medical Association.——Dr. Paul H. Harmon, Los Angeles, recently served as visiting foreign professor of orthopedic surgery at the Hospital dos Servidores do Estado, Rio de Janeiro, Brazil, a post that he held for two months in 1951. He also held clinics and delivered lectures on orthopedic surgical subjects in various Brazilian cities.——Dr. C. Henry Kempe, assistant professor of pediatrics, University of California School of Medicine, San Francisco, who recently was granted a two month leave to accept an invitation from the government of India and the World Health Organization, served at the King Institute in Madras, where he conducted studies on serum treatment of smallpox in connection with research being carried on in the University of California School of Medicine.——Dr. Jacob Janzen, formerly associate clinical professor in general surgery, College of Medical Evangelists, Loma Linda-Los Angeles, and his wife, Dr. Marilyn Ernestine Janzen, are now on the staff of Vellore Christian Medical College near Madras in Southern India.——Dr. John Iaman, native of the Gilbert Islands, is doing postgraduate study in pathology at San Bernardino County Charity Hospital under the direction of Dr. Jack D. Kirshbaum. Sponsored by the Trust Territory of the Pacific, under the Department of Interior, Dr. Iaman is the first island native to study in the United States in this program. When the year ends, he plans to establish a small pathology laboratory in the Marshall Islands and continue his practice of medicine there.——Dr. Herbert M. Evans, Berkeley, director, Institute of Experimental Biology, University of California, recently was elected a foreign member of the Swedish Royal Academy of Sciences for his "masterly researches in the domain of endocrinology and vitaminology."

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

DELAWARE

Society News.—The Delaware Academy of General Practice in conjunction with the Lederle Laboratories held a symposium on bone and joint diseases April 18 at the A. I. DuPont Institute in Wilmington, with Dr. Alfred R. Shands, director of the institute, as guest moderator and Drs. J. Jesse Selinkoff and Arthur J. Heather, both of Wilmington, as moderators. Out-of-state speakers included Drs. Charles A. Ragan, John S. Davis, Frederick L. Liebolt, and L. Ramsay Straub, New York; Isadore W. Ginsburg, Philadelphia; Richard H. Follis Jr., Baltimore; Paul W. Hugenberger, Boston; Charles F. Geschickter, Washington, D. C.; and Frank G. Dickinson, Ph.D., Chicago. Some 200 physicians from Maryland, Pennsylvania, New Jersey, Delaware, and the District of Columbia attended the symposium. The governor of the state of Delaware, J. Caleb Boggs, was guest of honor at the banquet.

DISTRICT OF COLUMBIA

Personal.—Dr. Maxine A. Schurter was recently honored by fellow physicians at the George Washington University Hospital in Washington, D. C., when she was chosen an outstanding intern, the first woman ever to receive the award. Dr. Schurter, who is the daughter of the late Dr. M. A. Schurter, was given an all-expense trip to any clinic of her choice in the United States. She selected the Mayo Clinic in Rochester, Minn.

Children's Hospital Opened.—The new $3,300,000 Children's Hospital was recently opened in Washington, D. C. Among those who took part in the ceremonies were Dr. Edgar P. Copeland, chief of the medical staff, who came to the hospital in 1898 as a resident student, and Dr. Montgomery Blair Jr., medical director. The hospital, which was founded in 1870, has grown from a staff of 4 physicians to the present consulting staff of 19, attending staff of 45, associate and junior associate staff of 183, and a resident and extern staff of 25 physicians.

FLORIDA

Hospital News.—The Mount Sinai Hospital of Greater Miami, Miami Beach, will hold its annual seminar on "Recent Advances in Diagnosis and Therapy," at the Delano Hotel, Miami Beach, May 21-23. The following program will be presented: Chester S. Keefer, Boston, "Chemotherapy," Stewart G. Wolf Jr., Oklahoma City, Okla., "Psychosomatism," Jack D. Myers, Durham, N. C., "Heart Disease," Thomas H. McGavack, New York, "The Thyroid," Alexander B. Gutman, New York, "Metabolism," Israel Davidsohn, Chicago, "Hematology," Samuel C. Bukantz, St. Louis, "Allergy," and Stefan S. Fajans, Ann Arbor, Mich., "Endocrinology." Panel discussion will follow each session. Registration fee, $20; cocktail party and banquet, $7.50 optional. For information address Chairman, Seminar Committee, Mount Sinai Hospital of Greater Miami, Miami Beach.

ILLINOIS

Rabid Foxes in Two Townships.—Because of the discovery of two rabid foxes, and possibly a third, in their forest preserves, Maine and Leyden townships have been placed under rabies quarantine by the state department of agriculture, according to Dr. John B. Hall Jr., Chicago, county health director.

State Medical Meeting in Chicago.—The Illinois State Medical Society will hold its annual meeting at the Hotel Sherman, May 19-22, under the presidency of Dr. Leo P. A. Sweeney, Chicago, who will deliver the presidential address Wednesday at 2 p. m. Thursday at 9:50 a. m. Dr. Charles S. Stevenson, Detroit, will give the oration in surgery on "The Diagnosis of Occult Ectopic Pregnancy," and at 2:30 p. m. Dr. Perrin H. Long, Brooklyn, will deliver the oration in medicine on "The Impact of Modern Antibacterial Therapy on the Social and Economic Aspects of the Practice of Medicine." Friday morning Dr. J. C. Thomas Rogers, Urbana, will serve as moderator for a symposium on "Postoperative Care of the Patient," and Friday afternoon there will be a symposium on "Neonatal Death—Its Prevention." Out-of-state speakers include:

A. Carlton Ernstene, Cleveland, Management of Cardiac Patients in Relation to Surgery, Anesthesia, and Obstetrics.
Harold F. Falls, Ann Arbor, Mich., Ocular Manifestations of Constitutional Disease.
John H. Randall, Iowa City, Complications of Labor.
J. Harvey Black, Dallas, Do You Need to Know About Allergy?
John P. Wyatt, St. Louis, Current Trends in Viral Disease.
B. Marden Black, Rochester, Minn., Management of Acute Intestinal Obstruction.
Alan R. Moritz, Cleveland, Coroner Versus Medical Examiner.
Paul A. O'Leary, Rochester, Minn., Dermatological Emergencies Seen in General Practice.
John R. Hodgson, Rochester, Minn., What Can the Radiologist Contribute to the Diagnosis of Gastrointestinal Disease in Children?
Leo H. Bartemeier, Detroit, Contribution from Psychiatry to the General Practice of Medicine.
Emanuel M. Papper, New York, Acid Base Balance During Anesthesia.

Tuesday afternoon the section on obstetrics and gynecology will present a symposium on elective induction of labor. Wednesday morning the section on pediatrics will have a symposium on "The Uses and Abuses of Chemotherapeutic and Antibiotic Agents for Infections in Children." The University of Illinois College of Medicine Alumni Association will hold its annual banquet at the Bismarck Hotel, Thursday, 7 p. m., preceded by cocktails at 6 p. m. Reservations at $7.50 per plate may be mailed to Dr. Michael H. Streicher, 1853 W. Polk St., Chicago 12. The Phi Chi Fraternity Alumni will have a luncheon meeting at the Hotel Sherman Thursday. Arrangements are being made by Dr. Arkell M. Vaughn, 30 N. Michigan Ave., Chicago, and by Dr. Jacob E. Reisch, 500 S. Fifth St., Springfield. At its annual dinner Thursday 7 p. m. in the Louis XIV Room, the Medical Alumni of Loyola University will have as honored guest Dr. Edward J. McCormick, Toledo, Ohio, President-Elect of the American Medical Association. The Woman's Auxiliary will hold its annual meeting at the Hotel Sherman, May 18-20.

Chicago

Society News.—At the annual meeting of the Chicago Dermatological Society, Dr. Samuel J. Zakon was elected president; Dr. William K. Ford, Rockford, Ill., vice-president; and Dr. Irene A. Neuhauser, secretary-treasurer.——At the dinner meeting of the Chicago Orthopaedic Society May 8 in the Palmer House, "Upper Extremity Prostheses" was presented by Drs. Clinton L. Compere and Robert G. Thompson (membership thesis) and "Trauma in Relation to Etiology of Bone Tumors" by Dr. Kellogg Speed.

Dedicate Cancer Research Hospital.—The Argonne Cancer Research Hospital was recently dedicated as the latest addition to the University of Chicago's center of medical and biological research. The hospital is to be regarded as a research hospital and is not to be used for the treatment of cancer by the methods already established. The Argonne Laboratory will have the privilege of sending physicians and scientists to the hospital to engage in selected research problems, but the responsibility for individual patients will rest with the faculty of the school of medicine of the university. Dr. Lowell T. Coggeshall, dean, division of biological sciences, will have charge of the scientific program and operation of the hospital. Day-by-day administration of the hospital has been delegated to the director, Dr. Leon O. Jacobson, professor of medicine, whose associate director is Dr. Robert J. Hasterlik, assistant professor of medicine. The new hospital, located on Ellis Avenue, adjoins the Nathan Goldblatt Memorial Hospital. On the sixth floor is the animal farm; on the fifth floor is a mold preparation laboratory, a radiation physics laboratory, and research programs including the synthesis program, metabolic studies, biochemical problems, and studies on radiation injury. Counting laboratories at the north end of the building are as far as possible from sources of radioactive material. The third and fourth floors together have 56 beds. The rooms are shielded from each other by 8 in. of concrete to prevent the building up of radiation from a number of patients. The third floor is to be used for patients who receive radioactive materials and the fourth for those who are being treated with the machines in the sub-basement. The offices and laboratories of Dr. Jacobson and Dr. Dwight E. Clark, professor of surgery, are on the second floor, where Dr. Jacobson's staff is concerned with hematological investigation and radiation injury and protection, and Dr. Clark's group is studying thyroid chemistry and physiology. On the first floor are the electronics and machine shops and the radiology shop. In the basement are laboratories for the mechanical processing of large quantities of radioactive materials. A cave will be installed to provide for handling 10 to 100 curies of radioactive materials by means of remote manipulators. Adjacent to the space reserved for the cave is the tube storage for radioactive isotopes, where 40 stainless steel tubes 8 in. in diameter extend 8 ft. below the floor in a solid block of concrete. Two rooms provide for the constant irradiation of animals and the study of chronic effects of radiation. Also on this floor are the large machines for the treatment of patients, the first to be installed being a 2 million volt electrostatic generator of x-rays, which will be used to study the effects of supervoltage x-ray on cancer and also to study the advantages of rotational therapy. Second to be installed will be a machine that will use a 1,800 curie source of cobalt-60 and will rotate the source about a horizontal axis, thus enabling the patient to be irradiated in a reclining position. The third machine to be installed in the sub-basement is a linear accelerator. Work is already under way to use radioactive yttrium in the treatment of brain tumors, exploit further the use of radioactive gold in cancer, increase the susceptibility of cancer to radiations and radioactive elements, and decrease the sensitivity of the normal tissue to these radiations.

KANSAS

Community Honors Dr. Garvin.—Dr. Fred A. Garvin, who has served as an Augusta physician for more than 50 years, was honored at a testimonial dinner, sponsored by the chamber of commerce, at which Dr. Edward H. Hashinger, University of Kansas School of Medicine, Kansas City, was guest speaker. Dr. Garvin was mayor of Augusta for 12 years. A plaque was presented to Dr. Garvin, inscribed "for over 50 years of faithful service from a grateful community."

KENTUCKY

Hospital News.—A loan fund of $5,000 for young physicians ready to enter private practice was established recently by an anonymous gift to Jewish Hospital, Louisville. A committee established by the hospital will administer the fund and select recipients.

Surgical Meeting.—The Kentucky Surgical Society, which is holding its annual meeting May 16 at the French Lick Springs Hotel, French Lick, Ind., has as guest speaker Dr. Daniel C. Elkin, chief of the department of surgery at Emory University School of Medicine, Emory University, Ga., who will discuss "The Treatment of Arterial Embolism." Dr. Elkin was distinguished guest essayist at the recent centennial meeting of the Kentucky State Medical Association.

Physicians Honored.—Four physicians who have served Union County for a combined total of almost 200 years were recently honored by their community at a testimonial dinner in Morganfield. They were Dr. John W. Conway, 81, Dr. Herbert B. Stewart, 79, Dr. Henry B. Allen, 79, and Dr. Casey B. Graves, 78, and they are still in active practice.

University News.—The University of Louisville School of Medicine makes the following announcements: Dr. Joseph P. Holt, formerly medical research director, Standard Oil Company (N. J.), has been named professor of heart research in the department of medicine and director of the Institute of Medical Research.——Dr. W. R. Pitney, formerly of Melbourne University, Australia, is serving as fellow in hematology.——Dr. Everett L. Pirkey has been appointed chairman of the department of radiology; Dr. Oscar W. Shadle, assistant professor of physiology; Dr. Robert F. Hansen, formerly of the U. S. Public Health Service, associate professor of community health and deputy director of health in the Louisville and Jefferson County Health Department; Dr. Donald K. Bailey, associate in pediatrics and in radiology; Dr. Israel Diamond, associate professor of pediatrics and of pathology; Dr. Herbert D. Kerman, formerly of Duke University School of Medicine, Durham, N. C., associate professor of radiology; and Dr. Charles H. Duncan, formerly of Columbia University College of Physicians and Surgeons, New York, assistant professor of psychiatry and of medicine.

LOUISIANA

State Medical Meeting in New Orleans.—The annual meeting of the Louisiana State Medical Society was held at the Hotel Roosevelt, New Orleans, May 7-9, under the presidency of Dr. William E. Barker Jr., Plaquemine. A presentation entitled "You and Your A. M. A." was made at the luncheon meeting Friday by Dr. George F. Lull, Secretary and General Manager of the American Medical Association, and Mr. Thomas A. Hendricks, secretary, A. M. A. Council on Medical Service, Chicago. Other out-of-state speakers included Drs. Willis E. Brown, Little Rock, Ark., Frank A. Donaldson, Jackson, Miss., Alexander K. Doss, Fort Worth, Texas, Joseph Felsen, New York, Deward O. Ferris, Rochester, Minn., Robert P. Glover, Philadelphia, Ebbe Curtis Hoff, Richmond, Va., Charles A. Hooks, Galveston, Texas, Christopher Parnall Jr., Rochester, N. Y., Meyer A. Perlstein, Chicago, Edwin L. Prien, Brookline, Mass., Edwin L. Rippy, Dallas, Texas, David T. Smith, Durham, N. C., S. Ralph Terhune, Birmingham, Ala., and Willard L. Waldron, Jackson, Miss.

MARYLAND

Personal.—Dr. William J. French, Annapolis, recently retired health officer of Anne Arundel County, has joined the staff of the Baltimore City Health Department as associate health officer in the southern health district, succeeding Dr. Abraham M. Lilienfeld, who resigned to accept a position at the Johns Hopkins School of Hygiene and Public Health, Baltimore.

Medicolegal Meeting.—Under the auspices of the Joint Committee on Medicolegal Problems of the Baltimore City and Maryland Bar Association and the Medical and Chirurgical Faculty of the State of Maryland, a symposium on use and abuse of drugs and cosmetics was held in Osler Hall, 1211 Cathedral St., Baltimore, May 15, 8 p. m. Participants were Dr. Kenneth C. Blanchard, Ph.D., Johns Hopkins Hospital, Baltimore, moderator, Dr. Milton S. Sacks, University Hospital, Baltimore, Dr. Leslie N. Gay, Baltimore, and Mr. Paul C. Wolman Jr., assistant U. S. attorney, Baltimore.

Society News.—The Maryland Society of Anesthesiologists recently elected the following officers, all of Baltimore: president, Dr. Samuel Rochberg, vice-president, Dr. Charles F. Hobelmann, secretary-treasurer, Dr. Alfred T. Nelson, delegate, Dr. Leonard J. Abramovitz, and alternate, Dr. Otto C. Phillips. ——Dr. Henry S. Ruth, professor of anesthesiology, Hahnemann Medical College and Hospital of Philadelphia, will present "Contributions of an Anesthesia Study Commission" before the Anesthesiology Section of the Baltimore City Medical Society, 1211 Cathedral St., May 20, 8:30 p. m.

MASSACHUSETTS

State Medical Meeting in Boston.—The annual meeting of the Massachusetts Medical Society will be held at the Hotel Statler, Boston, May 19-21, under the presidency of Dr. Thomas H. Lanman, Boston. Out-of-state speakers include:

Vincent J. Collins, New York, Management of Special Pain Problems.
Aubrey O. Hampton, Washington, D. C., Early Roentgen Examination Following Massive Gastrointestinal Hemorrhage.
Walter C. Alvarez, Chicago, The Art of Disregarding Findings which Cannot Explain the Symptoms.
Howard A. Rusk, New York, Medicine's Number One Problem.
T. F. McNair Scott, Philadelphia, Contributions of Virus Diagnostic Laboratories to the Health of the Community.
N. Chandler Foot, New York, Value of Exfoliative Cytology to the Medical Practitioner.
Anthony C. Cipollaro, New York, Cutaneous Manifestations of Systemic Disorders.
Kenneth E. Appel, Philadelphia, Putting the Family Back in Medical Education.

Tuesday afternoon the annual oration on "Medicine and the Doctor in Word and Epigram" will be delivered by Dr. Sara M. Jordan, director, department of gastroenterology, Lahey Clinic, Boston. Wednesday at 2 p. m. Dr. Henry C. Marble, Boston, will serve as moderator for a panel on industrial medicine, and at 3:15 p. m. there will be a symposium on diseases of the blood. A cocktail party in the hotel will precede the annual dinner, 7 p. m., at which Thomas R. A. H. Davis, director of medical services for the Cook Islands, New Zealand, will be guest speaker. Tickets for the cocktail party and dinner must be procured in advance. Thursday, 9:25 a. m., there will be a panel discussion on arthritis, with Dr. Walter Bauer, Boston, as moderator. At 10:40 a. m. Dr. Arthur W. Allen, president, Boston Medical Library, will speak on "The Doctor and His Books." At 11:05 a. m. Sir Alexander Fleming, of London, England, will deliver the Shattuck lecture. At 4:05 p. m. Thursday Dr. Brendan D. Leahey, Lowell, will conduct a kodachrome clinic on corneal transplantation. . . . The New England Society of Physical Medicine, which will hold its annual meeting at the luncheon of the section on physical medicine, will be addressed by Dr. Howard A. Rusk. An exhibition of works of art by members of the Massachusetts Physicians Art Association will be open daily, 9 a. m. to 5 p. m., on the fourth floor of the Hotel Statler. The annual golf tournament will start Wednesday, 1 p. m., at the Wollaston Golf Club in Wollaston.

MINNESOTA

Centennial Issue.—The April issue of *Minnesota Medicine* is designated as the 100th anniversary number in honor of the founding of the Minnesota State Medical Association. It includes "One Hundred Years of Organized Medicine in Minnesota" by Dr. Robert Rosenthal, St. Paul; "Medical Schools and Medical Education over the Past Century" by Dr. Harold S. Diehl, Minneapolis; "A Century of Medicine" by Dr. S. Marx White, Minneapolis; and articles on progress in specialties.

St. Joseph's Hospital Centennial.—In commemoration of the 100th anniversary of the founding of St. Joseph's Hospital, St. Paul, a scientific session will be held May 16-17 at the Hotel Lowry, St. Paul. Two Nobel prize winners in medicine, Sir Alexander Fleming, London, England, and Dr. Philip S. Hench, Rochester, Minn., will address the afternoon session on "The Discovery of Penicillin" and "The Discovery of Cortisone," respectively. A symposium on diseases of the gallbladder will be held in the morning. During the morning session also Dr. Richard R. Trail, London, England, will discuss "Experiences in Mass Photofluorography." Other presentations by out-of-state speakers include:

Indicatons and Precautions in Cholecystectomy, Warren H. Cole, Chicago.
Tissue Permeability, William Boyd, Vancouver, B. C.
Coagulation of the Blood, Armand J. Quick, Milwaukee.
Development of Bronchoscopy, Chevalier L. Jackson, Philadelphia.
Psychiatry and Religion, Francis J. Braceland, Hartford, Conn.
Women in Medicine, Burgess L. Gordon, Philadelphia.

The banquet, 7 p. m., will be open to the public and will be addressed by Dr. Louis H. Bauer, Hempstead, N. Y., President of the American Medical Association, Dr. Harold L. Foss, Danville, Pa., president of the American College of Surgeons, and Dr. LeRoy H. Sloan, Chicago, president of the American College of Physicians.

State Medical Meeting Centennial.—The Minnesota State Medical Association will hold its 100th anniversary meeting at the Hotel St. Paul in St. Paul, May 18-20, under the presidency of Dr. Roger L. J. Kennedy, Rochester. Dr. Joseph C. Bell, Louisville, president of the Radiological Society of North America, will deliver the Russell D. Carman Memorial Lecture on gastrointestinal disease in the Auditorium Theater at 2 p. m. Monday. The Arthur H. Sanford Lectureship in Pathology on "Coroner Versus Medical Examiner" will be presented at 11:30 a. m. Wednesday by Dr. Alan R. Moritz, professor of pathology, Western Reserve University School of Medicine, Cleveland. Presentations by other out-of-state speakers include:

Clinical Aspects of Bronchogenic Carcinoma, Alton Ochsner, New Orleans.

Role of Chest X-Ray Surveys in Diagnosing Bronchogenic Carcinoma, Richard R. Trail, London, England.

Antibiotics in Heart Disease, Sir Alexander Fleming, London, England.

Massive Hemorrhage of the Upper Gastrointestinal Tract, John M. Dorsey, Chicago.

Use of Radioactive Substances in Treatment of Disease, Joseph E. Rall, New York.

Carcinoma of the Ovary with Special Emphasis on Prevention, Early Diagnosis, and Recent Advances in Therapy, William C. Keettel, Iowa City.

Some Aspects of Diagnosis, Treatment, and Prognosis of Erythroblastosis, Bruce Chown, Winnipeg, Canada.

Obstetric Manikin Demonstration, George E. Rogers, Detroit.

In the Auditorium Theater Monday at 4 p. m. there will be a symposium on fractures and Tuesday at 2 p. m. a panel on marginal neuroses in everyday practice. The annual banquet, Tuesday, 7 p. m., Continental Room, will be preceded by the presidential reception, 5:30 to 6:45 p. m. in the Casino. Dr. Elexious T. Bell, emeritus professor of pathology, University of Minnesota Medical School, Minneapolis, will address the luncheon meeting of the Minnesota Medical Foundation, 12:15 p. m. Monday.

MISSOURI

Alumni Dinner Meeting.—The St. Louis City Hospital #1 Alumni Association will hold its annual meeting and dinner May 20, 7 p. m., in the Chase Hotel. Plaques will be presented to Drs. LeRoy Sante, St. Louis, and Avery P. Rowlette, Moberly. All alumni are invited. Reservations should be made through Dr. Don C. Weir, Secretary, 606 Missouri Theatre Building, St. Louis 3.

Hospital News.—Physicians are invited to attend the meeting of the consulting staff at the Ellis Fischel State Cancer Hospital in Columbia, May 24. At 9:30 a. m. an operative clinic on fibro-osteoma of the maxilla will be held by Dr. James Barrett Brown, St. Louis, who will speak at 11 a. m. on "Surgical Repair of Radiation Lesions Including Those of Atomic Origin." Dr. Richard E. Johnson, Ellis Fischel Hospital, will present "Survey of the Case Material at Ellis Fischel State Cancer Hospital, 1947-1952."

NEW JERSEY

State Medical Meeting in Atlantic City.—The Medical Society of New Jersey will hold its annual meeting at Haddon Hall, Atlantic City, May 17-20, under the presidency of Dr. Harrold A. Murray, Newark. Dr. Henry B. Decker, Camden, president-elect, will deliver the inaugural address Monday, 8 p. m. Monday at 10 a. m. the section on surgery will present a symposium on emergency treatment of accidental injuries occurring on the highways and at 11 a. m. a symposium on the management of sarcoma of the soft tissues. On Wednesday morning the section on chest diseases will present symposiums on "Observations on the Chemotherapy of Tuberculosis with Isoniazid" and "Progress in Thoracic Surgery," and the section on gastroenterology and proctology will have a symposium on "Upper Gastrointestinal Bleeding." At the banquet Tuesday 6:30 p. m., in honor of Dr. and Mrs. Murray, the Doctors' Chorus of the Essex County Medical Society will sing. The New Jersey State Council for Improvement of School Health Services will hold an open meeting Monday 4:30 p. m. on "Maintaining Eye Health for Learning: The School's Responsibility." Dr. Israel J. Wolf, Paterson, will serve as chairman, and Dr. Franklin M. Foote, New York, executive director, National Society for the Prevention of Blindness, will be keynote speaker. Drs. K. Virginia Maurer, Livingston, and Robison D. Harley, Atlantic City, will participate in the symposium.

Personal.—Dr. Carl J. Schopfer, Bloomfield, was elected coroner of Essex County in the last general election.——Dr. Walter G. Alexander of Orange was named president of the New Jersey Tuberculosis League at its annual meeting in Trenton. ——Dr. Frederick F. Yonkman was elected vice-president in charge of research of Ciba Pharmaceutical Products, Inc., Summit, to succeed Dr. Ernst A. Oppenheimer, who has retired after nine years in this post. Dr. Oppenheimer will continue as a consultant. Dr. Yonkman has been director of research under Dr. Oppenheimer since 1945.——Dr. Walter G. Alexander, Orange, was elected president of the New Jersey Tuberculosis League at the annual meeting of that organization.——Dr. Royal A. Schaaf, Newark, past president of the New Jersey State Medical Society and of New York University's Medical Alumni Association, has been elected alumni member of the governing council of New York University, to serve until October, 1957. Dr. Schaaf has also served as president of the Academy of Medicine of Northern New Jersey and the Essex County Medical Society.——Dr. Hyman I. Goldstein, Camden, spoke on "Early Medical School-Teaching-Hospitals in the United States" before the annual meeting of the American Association of the History of Medicine at the Ohio State University Museum, Columbus, April 12.

NEW YORK

Society News.—On May 19 the Medical Society of the County of Kings (1313 Bedford Ave., Brooklyn) will present a program on "Chronic Ulcerative Colitis"; the medical aspects will be discussed by Dr. Everett D. Kiefer, Lahey Clinic, Boston, and the surgical aspects by Dr. [illegible]ry E. Bacon, Temple University School of Medicine, Philadelphia.

Prize for Interns and Residents.—The Brooklyn Society of Internal Medicine announces the Frank B. Cross prize of $250 to be given to the intern or resident in a hospital in Brooklyn, in 1953, who submits the most outstanding paper concerning original studies in medicine based chiefly on clinical observations. All papers should be submitted by Nov. 1 to Dr. A. Sidney Barritt, Secretary, 311 Garfield Place, Brooklyn.

Course in Electron Microscopy.—The annual Cornell summer laboratory course in techniques and applications of the electron microscope will be given June 15-27, under the direction of Benjamin M. Siegel, Ph.D. James Hillier, Ph.D., of the RCA Laboratories, Princeton, N. J., and Dr. Cecil E. Hall of the Massachusetts Institute of Technology, Cambridge, Mass., will be guest lecturers. Inquiries should be addressed to Dr. Benjamin M. Siegel, Department of Engineering Physics, Rockefeller Hall, Cornell University, Ithaca, N. Y.

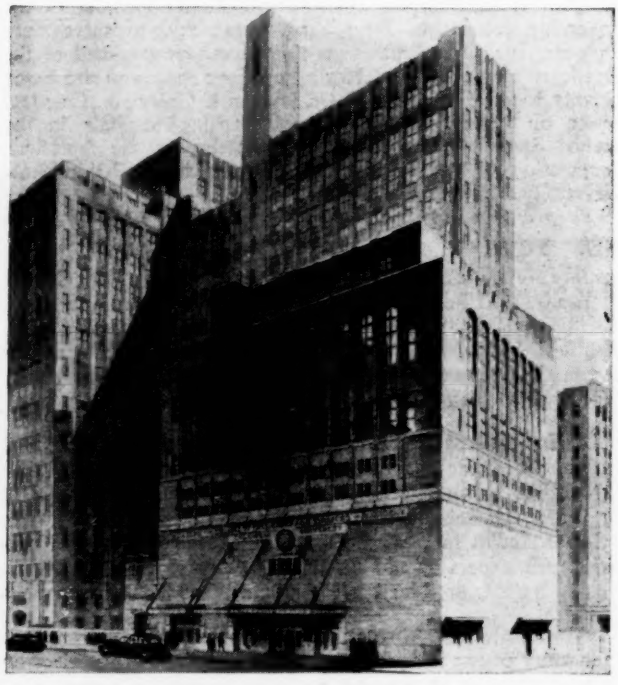
New York City

Dr. Potts to Address Cardiovascular Surgeons.—Dr. Willis J. Potts, surgeon-in-chief, Children's Memorial Hospital, Chicago, will address an open meeting of the New York Society for Cardiovascular Surgery and the Committee on Cardiovascular Surgery of the New York Heart Association at the Academy of Medicine, 2 E. 103rd St., May 18, 8:30 p. m. on "Re-evaluation of the Surgical Treatment of Congenital Heart Disease."

Annual Kaplan Lecture.—The Radiation Therapy Alumni Association, Bellevue Hospital, will present the annual Ira I. Kaplan lecture at an open meeting, May 21, 2 p. m., on the eighth floor of the hospital's administration building. Dr. Paul C. Aebersold, Ph.D., director, Isotopes Division, Oak Ridge (Tenn.) Institute of Nuclear Studies, will speak on the "Present Status of the Clinical Use of Radioisotopes." Discussion will be by Dr. Sidney Rubenfeld, director, radiation therapy department and chairman, Isotope Committee, Bellevue Hospital.

Personal.—Dr. George T. Pack recently addressed the Southside Clinical Society in Oakdale, Long Island, on "The Extension of Radical Surgery in the Treatment of Cancer" and spoke before the Blair County Medical Society of Altoona, Pa., on the same subject.——Dr. Henry Wisdom Cave, consultant surgeon to Roosevelt Hospital, has been elected to the hospital's board of trustees. Dr. Cave is clinical professor of surgery, College of Physicians and Surgeons, Columbia University, and a past president of both the American College of Surgeons and the New York Surgical Society.

Columbia Bicentennial Fund.—The steering committee for Columbia University's Bicentennial Fund for the Medical Sciences has launched a million dollar campaign to provide additional staff, salary increases, more fellowships, scholarships, and new equipment. In addition, the construction of a new building, costing 3 million dollars, has been projected to house Columbia's medical library and provide adequate auditorium facilities. The new building will be located at the Columbia-Presbyterian Medical Center at the corner of West



The library and auditorium building that Columbia University plans to erect at the Columbia-Presbyterian Medical Center.

168th Street and Fort Washington Avenue. The Bicentennial Fund for the Medical Sciences, organized in connection with the 200th anniversary of Columbia University, has as its general chairman Dr. William B. Parsons, professor of clinical surgery, who is retiring president of the New York Academy of Medicine. More than 250 institutions have already indicated a desire to participate in the bicentennial celebration in 1954.

PENNSYLVANIA

Meeting on Physical Medicine.—The Pennsylvania Academy of Physical Medicine and the New Jersey Society of Physical Medicine is holding a joint meeting May 16 at Philadelphia General Hospital. The following speakers will be present:

William J. Erdman II, Philadelphia, Prosthesis in Amputation.
George E. Farrar, Philadelphia, Hyaluronidase as an Aid to Increasing Joint Functions (film).
Temple S. Fay, Philadelphia, Value of Unlocking Reflexes in Spastic Type of Paralysis.
Harold Lefkoe, Philadelphia, Intermittent Cervical Traction.

Radiologists Meet in Pottsville.—The annual meeting of the Pennsylvania Radiological Society will be held at the Necho Allen Hotel, Pottsville, May 22-23. Film reading sessions will be conducted by Dr. Carl B. Lechner, Erie, Friday, 9:50 a. m., and by Dr. Paul C. Swenson, Philadelphia, Saturday, 9:45 a. m. Among the invited speakers are Dr. Robert E. Wise, Pittsburgh, who will discuss "Diskography," Friday at 1:30 p. m. and Dr. Campbell Moses, Pittsburgh, who will present "The Integration of the Isotope Laboratory with Internal Medicine" as part of a panel discussion on "The Radioactive Isotope Laboratory in a Moderate Sized Hospital," Friday, 2:30 p. m.

General Practitioners Meet in Bedford.—The Pennsylvania Academy of General Practice will hold its annual convention at the Bedford Springs Hotel in Bedford, May 22-24. The program includes the following speakers:

Stuart T. Ross, Hempstead, N. Y., Office Diagnosis of Common Proctologic Conditions.
Lewis M. Hurxthal, Boston, Adrenal Disorders.
Frank J. Heck, Rochester, Minn., Blood Dyscrasias.
Hugh Montgomery, Philadelphia, Vascular Diseases.

There will be a banquet and dance May 23, and other recreational and social activities are planned.

Pittsburgh

Society News.—Dr. Harold L. Foss of Danville, Pa., president of the American College of Surgeons, will speak at the annual dinner of the Pittsburgh Surgical Society, May 25.

Sir Alexander Fleming Day.—Sir Alexander Fleming, of London, England, discoverer of penicillin, will present a paper at 4:30 p. m. May 19 before the Allegheny County Medical Society at the William Penn Hotel and will also address the dinner meeting at 7 p. m.

TENNESSEE

Gift for Surgical Research Laboratory.—Vanderbilt University, Nashville, has announced plans for a two story S. Rudolph Light Laboratory for Surgical Research which, with its equipment, will cost about $350,000, gift of Dr. S. Rudolph Light, Kalamazoo, Mich., father of Dr. Rudolph A. Light, associate professor of surgery in the school of medicine.

Postgraduate Cancer Courses.—The Tennessee State Medical Association, Tennessee State Health Department, and the Tennessee Division of the American Cancer Society will give a postgraduate course in five centers in the western half of the state, as follows: May 18, Columbia; May 19, Clarksville; May 20, Union City; May 21, Jackson; and May 22, Millington. In each of these centers Dr. Samuel A. Wilkins Jr. of the Robert Winship Memorial Clinic, Emory University, Emory University, Ga., will speak on "Diagnosis and Treatment of Carcinoma of the Cervix Uteri" and "Carcinoma of the Fundus," and Dr. Maus W. Stearns Jr., Cornell University Medical College, New York, will discuss "Cancer of the Colon" and "Cancer of the Rectum."

UTAH

Ogden Surgical Meeting.—The Ogden Surgical Society will hold its annual meeting at the Orpheum Theatre in Ogden May 20-22. The following physicians will speak: Edgar V. Allen and Malcolm B. Dockerty, Rochester, Minn., John A. Anderson and Leo H. Garland, San Francisco, C. H. Hardin Branch, Salt Lake City, W. Emory Burnett and Harold G. Scheie, Philadelphia, George Crile Jr., Cleveland, James H. Forsee, Denver, Henry N. Harkins, Seattle, Frank H. Lahey, Boston, Alton Ochsner, New Orleans, Carlton N. Price, Washington, D. C., Danely P. Slaughter, Chicago, Albert M. Snell, Palo Alto, Calif., Owen H. Wangensteen, Minneapolis, and Robert M. Zollinger, Columbus, Ohio. There will be a symposium on "Biliary Tract Diseases" Thursday, 3:30 p. m., with Dr. Wangensteen as moderator. Dr. Scheie will address the ophthalmologic section, Thursday 10 a. m. and 2 p. m. in the Drawing Room of the Hotel Ben Lomond. Daily round-table luncheon discussions will be held at the hotel, 12:15 p. m. by the guest speakers. Hotel reservations may be made through Dr. Leath D. Nelson, 401 Eccles Building, Ogden.

VIRGINIA

Hospital News.—The staff meeting of the Jefferson Hospital, Roanoke, will be held at the Hotel Roanoke, May 20. Papers will be presented by Dr. Thomas H. Hunter, dean, University of Virginia School of Medicine, Charlottesville, and Dr. Robert Scott Dinsmore, senior surgeon, Cleveland Clinic.

Personal.—Dr. Vincent Hollander, a member of the staff of the Sloan-Kettering Institute of the Memorial Cancer Center, New York, has joined the faculty of the University of Virginia School of Medicine, Charlottesville, as assistant professor of internal medicine and coordinator of the cancer program.

WASHINGTON

Hematology Symposium.—At its annual meeting in Tacoma May 23, the Tacoma Academy of Medicine will present a symposium on hematology. Dr. Carl V. Moore, professor of medicine, Washington University School of Medicine, St. Louis, will speak on "Pathogenesis and Treatment of Iron Deficiency Anemias" and "Newer Concepts of Pathogenesis of Idiopathic Thrombocytopenic Purpura." Dr. Moore will also be speaker of the evening at the banquet Saturday evening, when new officers of the academy will be installed.

WEST VIRGINIA

Assembly of General Practitioners.—The West Virginia Academy of General Practice will hold its assembly at the Daniel Boone Hotel, Charleston, May 16-17, under the presidency of Dr. Carl B. Hall, Charleston. Out-of-state speakers include:

George H. Yeager, Baltimore, Cancer of Lower Gastrointestinal Tract.
Wilford L. Cooper, Lexington, Ky., Etiology of Pain in the Anorectal Region.
John H. Willard, Philadelphia, Present Day Treatment of Ulcers.
O. Spurgeon English, Philadelphia, Functional Aspects of Gastrointestinal Disease.
Paul L. Shallenberger, Sayre, Pa., 4,500 Consecutive Sigmoidoscopic Examinations.
Charles H. Thompson, Philadelphia, Chronic Enteritis and Ulcerative Colitis.
Philip Thorek, Chicago, Jaundice.
Edmund R. McCluskey, Pittsburgh, Pediatric Emergencies, First 48 Hours of Life.
Gene H. Stollerman, New York, Prevention of Rheumatic Fever.
Louis H. Douglass, Baltimore, Prenatal and Postnatal Care.
James H. Walker, Boston, Fourth Dimension in Thoracic Surgery.
James W. Watts, Washington, D. C., Involutional Melancholia.

A symposium, "The Cradle to the Grave," will follow the presentation of the paper by Dr. Watts. A cocktail hour, Thursday, 6:30 p. m., will precede the banquet, at which the mayor of Richmond, Va., Dr. Edward Ellis Haddock, who is president of the Virginia Academy of General Practice, will be guest speaker. A dance will follow the banquet.

Symposium on Pediatrics.—The Committee on Medical Education of the West Virginia State Medical Association will hold a symposium on pediatrics at the Beckley Elks Club in Beckley, May 20. Dr. Preston A. McLendon, Washington, D. C., at the morning session will speak on "New Problems in Child Care" and at the afternoon session on "Infant Feeding and Nutrition in the Older Child." Other presentations include "Pediatric Emergencies" by Dr. Lee E. Sutton Jr., Richmond, Va.; "Advances in Treatment of Tuberculous Meningitis" by Dr. William W. Waddell Jr., Charlottesville, Va.; and "A Pediatrician Looks at the Behavior Problems of Children" by Dr. Alexander A. Weech, Cincinnati. A cordial invitation has been extended by the Raleigh County Medical Society to all physicians attending the symposium to remain over in Beckley for the regular monthly dinner meeting of the society, at 6:30 p. m. at the El Chico Cafe.

WISCONSIN

Anesthesiologists Meeting.—The Wisconsin Society of Anesthesiologists will meet May 17, 10 a. m., at the Wisconsin General Hospital, Madison. Dr. Willard D. Bennett, Louisville, will speak on "Personal Experiences with Group Practice" and Dr. Frederick E. Shideman, professor of pharmacology, University of Wisconsin, on "Distribution and Rate of Metabolism of Thiopental (Pentothal)." At 10:45 a. m. there will be a round-table on "Hypotension During Anesthesia: Blessing or Catastrophe?" and at 1:30 p. m. a round-table on "Trichlorethylene: Solvent or Anesthetic Agent?"

Course in Pediatrics.—The University of Wisconsin Medical School, Madison, will present a graduate course in pediatrics, May 19-21, at the Wisconsin General Hospital. The course, which is under the direction of Dr. John E. Gonce Jr., professor of pediatrics, will be limited to 45 registrants. Fee, $10. Application for registration should be sent to Dr. Robert C. Parkin, University of Wisconsin Medical School, 418 Randall Ave., Madison 6.

GENERAL

P. T. A. Approves Fluoridation.—At a recent meeting in Chicago the board of managers of the National Congress of Parents and Teachers voted unanimously to recommend the fluoridation of public water supplies as a means of reducing the high incidence of dental caries among children. According to a report from the American Dental Association, residents of 586 cities in 43 states and the District of Columbia are now receiving the benefits of fluoridated water.

International Congress of Ophthalmology.—The International Congress of Ophthalmology will take place at the Waldorf-Astoria Hotel, New York, Sept. 12-17, 1954. The chief topics for discussion are primary glaucoma and etiology of uveitis, but a number of papers by authors on subjects of their own choosing will be heard. Original papers should be sent to the secretary-general, Dr. William L. Benedict, 102-2nd S. W., Rochester, Minn., not later than Jan. 1, 1954.

Course in Fluoride Analysis.—A short course in fluoride analysis will be conducted jointly by the Division of Dental Public Health and the Environmental Health Center of the Public Health Service at Cincinnati, May 28-29. Persons in a position to assist in training chemists and others to perform the analysis for fluorides in water are invited to attend. Applications should be sent to the Chief, Specialized Sanitation Training Section, Environmental Health Center, 1014 Broadway, Cincinnati 2.

Directory of Health Councils.—According to the revised "Directory of Community Health Planning Councils" issued by the National Health Council, the number of health councils in the United States has increased 30% in the last three years. The new survey of health councils from which the revised directory was compiled revealed 1,564 community health planning bodies and 33 state health councils. The directory can be secured for $1 from the National Health Council, 1790 Broadway, New York 19.

Symposium for Anesthesiologists.—The University of Pittsburgh School of Medicine, department of surgery, section on anesthesiology, announces a postgraduate symposium on the "Basic Sciences Related to Anesthesiology" in cooperation with the departments of anesthesiology of the St. Francis, Allegheny General, and Mercy hospitals, June 8-12, 9 a. m. to 6 p. m.; registration fee, $25. The course will be limited to 50 participants. Details may be obtained from Chairman, Committee on Graduate Medical Education, University of Pittsburgh School of Medicine, 3941 O'Hara St., Pittsburgh 13.

Society News.—The Committee on Scientific Program for the annual Midwest Regional Meeting of the American College of Physicians, to be held in Milwaukee, Nov. 21, invites the submission of titles of papers and of abstracts not exceeding 300 words before June 1 to the chairman, Dr. John S. Hirschboeck, 561 N. 15th St., Milwaukee.——The American College of Anesthesiologists announces the removal of its offices from New York to 188 W. Randolph St., Chicago 1.——At its annual meeting in Seattle the Pacific Coast Surgical Association elected the following officers: president, Dr. E. Eric Larson, Los Angeles; vice-president, Dr. John E. Raaf, Portland, Ore.; secretary-treasurer, Dr. Carleton Mathewson Jr., San Francisco; and recorder, Dr. Clarence J. Berne, Los Angeles.——The American Academy of General Practice announced at its

recent annual meeting that 464 physicians are being dropped from membership in the academy because of their failure to fulfill their postgraduate study requirements of 50 hours a year.——At the annual meeting of the American Association of Railway Surgeons in Chicago, Dr. Joseph H. Francis, Memphis, Tenn., was chosen as president and Dr. William G. Bessmer, Davenport, Iowa, as president-elect. Drs. Melvin L. Hole, Danville, Ill., J. Rudolph Jaeger, Philadelphia, and George H. Walker, Lincoln, Neb., were elected as vice-presidents, and Drs. Chester C. Guy and Theodore L. Hansen, both of Chicago, were reelected secretary and treasurer, respectively.——At its annual meeting in Chicago the Walter Reed Society, which is comprised of persons who have served as voluntary subjects for experimental research, elected Dr. Max S. Sadove, Chicago, president; Drs. Charles F. Code, Rochester, Minn., Clinton H. Thienes, Pasadena, Calif., and Yvo T. Oester, Chicago, vice-presidents; and Dr. Frances A. Hellebrandt, Chicago, secretary-treasurer.

Course in Cardiac Resuscitation.—A two day postgraduate course in cardiac resuscitation (limited to 18 enrollees) is given once a month at Western Reserve University School of Medicine, Cleveland, by Drs. Claude S. Beck, Robert M. Hosler, David S. Leighninger, Robert A. Hingson Jr., and Herman K. Hellerstein. About 500 persons from this country and abroad have taken the course since it was established in 1950. The first section of the course includes lectures, movies, and animal experiments. The second section is concerned with intratracheal intubation, lectures on predisposing factors, danger signals leading up to cardiac arrest, demonstrations on the physiology of the heart beat, and the role of cardiac drugs. At the final class session, students are given an opportunity to practice cardiac massage; no member finishes the course until he has brought the heart out of ventricular fibrillation at least once. Applications should be sent to the Cleveland Area Heart Society (2073 E. Ninth St., Cleveland), which gave the grant to establish the course.

Tuberculosis Groups Meet in Los Angeles.—Joint annual meetings of the National Tuberculosis Association, the American Trudeau Society, and the National Conference on Tuberculosis Workers will be held at the Statler and Biltmore hotels in Los Angeles May 18-22. A case finding breakfast sponsored by the California Tuberculosis Association (attendance by invitation) will be held Monday at 8:30 a. m. On Tuesday the program development session will be devoted to "The Economics of Case Finding." A conference on Indian problems will be held Tuesday morning. Tuesday at 8 p. m. there will be a clinical x-ray conference. The American Trudeau Society, meeting at luncheon Wednesday, 12 p. m., will present the following program:

How Good Is Chemotherapy? Robert H. Ebert, Chicago.
How Should Chest Diseases be Taught? H. McLeod Riggins, New York.
Research—Does It Pay Off? Karl F. Meyer, Ph.D., San Francisco.
Who Next? Julius L. Wilson, Philadelphia.
What Next? Kirby S. Howlett Jr., Shelton, Conn.
How Is Our Health? David A. Cooper, Philadelphia.

The general closing session Friday morning will have the following program:

A Controlled Study of Isoniazid, a Public Health Service Cooperative Investigation, Paul T. Chapman, Detroit.
Present Status of Chemotherapy in Tuberculosis with Summary of Veterans Administration, Army, and Navy Study, Ross L. McLean, Baltimore.
Los Angeles General Hospital Admission X-Ray Program, George Jacobson, Los Angeles.
The Unhospitalized Tuberculosis Patient
Public Health Problem, Herbert R. Edwards, New York.
Medical Problem, H. Corwin Hinshaw, San Francisco.
Nursing Problem, Catherine Natsuko Chin, P.H.N., Seattle.
Available Data Bearing on These Problems, Joseph B. Stocklen, Cleveland, Arthur B. Robins, New York.

Discussors will be Drs. Sidney H. Dressler and Gardner Middlebrook, Denver, and Nicholas D. D'Esopo, Sunmount, N. Y. Numerous special events have been planned, including a Fiesta Night Monday with Mexican dinner; Farmer's Market trip Tuesday noon; and Corrigan's Ranch trip with chuck wagon dinner, Wednesday night.

FOREIGN

Congress of Audiology.—The International Congress of Audiology will be held at the Boerhaave Hospital, Leyden, The Netherlands, June 5-6. Among the 30 papers to be presented will be discussions on speech audiometry and selection of hearing aids, auditory function after neurosurgical treatment of the temporal lobe, continuous audiometry as the method of choice for recording noise trauma, localization experiments with phantom sources, and the theory of binaural localization. Dr. Aram Glorig Jr., Washington, D. C., will speak on "Military Audiology," and Dr. Heinrich F. G. Kobrak, Chicago, will present a film on "The Reflex of the Intratympanic Muscles as Indicator of Cochlear Function." Information may be obtained from the secretary-general, Henk C. Huizing, 182 Oostersingel, Groningen, The Netherlands.

CORRECTION

Chicago Medical School Lectures.—The lectures in endocrinology, given by the Chicago Medical School, 710 S. Walcott Ave., are held on Tuesdays at 12:30 p. m., not at 2:30 p. m. as stated in THE JOURNAL, May 2, p. 58.

Jaundice Produced by Aureomycin.—In THE JOURNAL for May 2, page 86, the first sentence in the first abstract from *Antibiotics & Chemotherapy* should read as follows: "A yeast diet that ordinarily produces hepatic necrosis in rats will not have this effect when aureomycin is added."

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 23-25. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARKANSAS:* *Regular. Examination.* Little Rock, June 18-19. Sec., Dr. Joe Verser, Harrisburg. *Homeopathic. Examination.* Little Rock, April 6. Sec., Dr. Carl S. Bungart, 105 North 14th St., Ft. Smith. *Eclectic.* Little Rock, June 4-5. Sec., Dr. Frank C. Smith, 2301 Broadway, Little Rock.

CALIFORNIA: San Francisco, June 22-25. Asst. Sec., Mr. Wallace D. Thompson, 1020 N Street, Sacramento 14.

COLORADO:* *Reciprocity.* Denver, July 14. Final date for filing applications is June 12. Exec. Sec., Mrs. B. H. Hudgens, 831 Republic Bldg., Denver. 2.

CONNECTICUT:* *Regular. Examination.* Hartford, July 14-15. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, July 14-15. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: Dover, July 14-16. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

FLORIDA:* Jacksonville, June 28-30. Sec., Dr. Homer Pearson, 701 Dupont Bldg., Miami.

GEORGIA: *Examination.* Atlanta and Augusta, June 9-10. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. Austin W. Matthis, Agana.

HAWAII: *Examination.* Honolulu, July 13-15. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: Boise, July 13-15. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

INDIANA: *Examination.* Indianapolis, June 23-25. Ex. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA:* *Examination.* Iowa City, June 15-17. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 10-11. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination.* Louisville, June 8-10. Sec., Dr. Bruce Underwood, 620 South Third St., Louisville 2.

LOUISIANA: *Examination.* New Orleans, June 4-6. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: *Reciprocity and Examination.* Augusta, July 14-15. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 16-19. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

MASSACHUSETTS: *Examination.* Boston, July 14-17. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston 33.

MICHIGAN: *Examination.* June 10-12, Ann Arbor and Detroit. Sec., Dr. J. Earl McIntyre, 201-4 Hollister Bldg., Lansing.

MINNESOTA:* *Reciprocity.* St. Paul, May 22-23. *Examination.* St. Paul, June 16-18. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: Jackson, June 22-24. Sec., Dr. Felix J. Underwood, Old Capitol Bldg., Jackson 113.

MONTANA: Helena, Oct. 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA:* *Examination.* Omaha, June 15-17. Director, Mr. Husted K. Watson, Room 1009 State Capitol Bldg., Lincoln 9.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: Trenton, June 16-19. Sec., Dr. Earl S. Hallinger, 28 West State St., Trenton.

NEW MEXICO:* Oct. 12-13, Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 23-26. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany 7.

NORTH CAROLINA: *Examination.* Raleigh, June 22-25. *Reciprocity.* Raleigh, June 23. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 8-11. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, June 15-17. *Reciprocity.* Columbus, July 7. Sec., Dr. H. M. Platter, 21 W. Broad, Columbus 15.

OKLAHOMA:* *Examination.* Oklahoma City, June 10-11. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON:* *Examination.* Portland, July 9-10. *Reciprocity.* Portland, July 24. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Act. Sec., Mrs. Margaret G. Steiner, Box 911, Harrisburg.

RHODE ISLAND:* Providence, July 2-3. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 22-24. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Rapid City, June 17-18. Exec. Sec., Mr. John C. Foster, 300 1st National Bank Bldg., Sioux Falls.

TENNESSEE:* Nashville, June 10-11. Memphis, June 17-18. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS:* Fort Worth, June 22-24. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: *Examination.* Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 15-17. Sec., Dr. F. J. Lawliss, Richford.

VIRGIN ISLANDS: *Examination.* St. Thomas, June 10-11. Sec., Dr. Earle M. Rice, Box 8, St. Thomas.

VIRGINIA: *Examination and Reciprocity.* Richmond, June 17-20. Address: Secretary, Board of Medical Examiners, 631 First St. S.W., Roanoke.

WASHINGTON:* Seattle, July 12-15. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, July 13-15. Sec., Dr. N. H. Dyer, State Office Bldg., Charleston 5.

WISCONSIN:* *Examination.* Milwaukee, July 14-16. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

WYOMING: *Oral. Reciprocity.* Cheyenne, June 8. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 16. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Sept. 9-10. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

CONNECTICUT: *Examination.* New Haven, June 13. Exec. Asst., Miss M. G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 19-20. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

FLORIDA: *Examination.* Gainesville, June 6. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

IOWA: Des Moines, July 14. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: Ann Arbor and Detroit, May 8-9. Sec., Mrs. Ann Baker, 423 W. Michigan Ave., Lansing 15.

MINNESOTA: Minneapolis, June 2-3. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

NEVADA: Reno, July 7. Sec., Mr. Frank Richardson, University of Nevada, Reno.

NEW MEXICO: Santa Fe, June 21. Sec., Mrs. Marguerite Cantrell, P. O. Box 1592, Santa Fe.

OREGON: *Examination.* Portland, June 6. Dr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, May 13. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: *Examination.* Vermillion, June 5-6. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, July 2-3. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

TEXAS: *Examination.* Austin, October. Chief Clerk, Mrs. Sandra Allen, 407 Perry-Brooks Bldg., Austin.

WASHINGTON: *Examination.* Seattle, July 8-9. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: *Examination.* Milwaukee, June 13. Final date for filing application is June 6. Madison, Sept. 19. Final date for filing application is Sept. 11. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

* Basic Science Certificate required.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Annual Session, New York, June 1-5.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

AMERICAN ACADEMY OF TUBERCULOSIS PHYSICIANS, Hotel Roosevelt, New York, May 30. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Secretary.

AMERICAN BLOOD IRRADIATION SOCIETY, Waldorf-Astoria, New York, May 30-31. Dr. H. T. Lewis, 1241 Peermont Ave., Pittsburgh, Secretary.

AMERICAN COLLEGE OF CARDIOLOGY, Hotel Statler, Washington, D. C., June 7-9. Dr. Philip Reichert, 480 Park Ave., New York 22, Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Hotel New Yorker, New York, May 28-31. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Executive Director.

AMERICAN DERMATOLOGICAL ASSOCIATION, Lake Placid Club, Lake Placid, N. Y., June 9-13. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN DIABETES ASSOCIATION, Hotel Commodore, New York, May 30-31. Dr. John A. Reed, 11 West 42d St., New York 36, Secretary.

AMERICAN GERIATRICS SOCIETY, Hotel Commodore, New York, May 28-30, Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

AMERICAN GYNECOLOGICAL SOCIETY, Lake Placid Club, Lake Placid, N. Y., June 15-17. Dr. John I. Brewer, 104 South Michigan Ave., Chicago, Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Barbizon-Plaza Hotel, New York, May 29-31. Dr. Elizabeth R. Fischer, 10848 South Fairfield Ave., Chicago 43, Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Hotel Claridge, Atlantic City, N. J., June 15-17. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY, The Homestead, Hot Springs, Va., May 28-30. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

AMERICAN ORTHOPEDIC ASSOCIATION, The Homestead, Hot Springs, Va., June 20-July 1. Dr. George O. Eaton, 4 East Madison St., Baltimore 2, Secretary.

AMERICAN PROCTOLOGIC SOCIETY, Hotel Statler, Boston, June 10-13. Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y., Secretary.

AMERICAN RHEUMATISM ASSOCIATION, Waldorf-Astoria, New York, May 28-29. Dr. William H. Kammerer, 33 East 61st St., New York 21, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, Henry Hudson Hotel, New York, May 25-31. Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield 8, Mass., Secretary.

AMERICAN THERAPEUTIC SOCIETY, The Biltmore, New York, May 28-31. Dr. Oscar B. Hunter Jr., 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

AMERICAN TRUDEAU SOCIETY, Hotel Statler, Los Angeles, May 18-22. Dr. John D. Steele, 1790 Broadway, New York 19, Secretary.

CALIFORNIA MEDICAL ASSOCIATION, Biltmore Hotel, Los Angeles, May 24-28. Dr. Albert C. Daniels, 450 Sutter St., San Francisco 8, Secretary.

CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA, Kansas City, Mo., May 25-28. Rev. John J. Flanagan, S.J., 1438 South Grand Blvd., St. Louis 4, Director.

CONFERENCE OF PRESIDENTS AND OTHER OFFICERS OF STATE MEDICAL ASSOCIATIONS, New York, May 31. Mr. Thomas R. O'Brien, 634 North Grand Blvd., St. Louis 3, Secretary.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, June 14-17. Dr. Robert S. McKean, 305 Sun Bldg., Boise, Secretary.

ILLINOIS STATE MEDICAL SOCIETY, Hotel Sherman, Chicago, May 19-22. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

MAINE MEDICAL ASSOCIATION, Eastland Hotel, Portland, June 21-24. Mr. W. Mayo Payson, 142 High St., Portland 3, Executive Secretary.

MASSACHUSETTS MEDICAL SOCIETY, Hotel Statler, Boston, May 19-21. Dr. Robert W. Buck, 22 The Fenway, Boston 15, Acting Secretary.

MEDICAL LIBRARY ASSOCIATION, New House Hotel, Salt Lake City, June 16-19 Miss Louise C. Lage, Lilly Research Laboratories, 740 South Alabama St., Indianapolis 6, Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION, Hotel St. Paul, St. Paul, May 18-20. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

NATIONAL TUBERCULOSIS ASSOCIATION, Statler and Biltmore hotels, Los Angeles, May 18-22. Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secretary.

NEW JERSEY, MEDICAL SOCIETY OF, Haddon Hall, Atlantic City, May 17-20. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

OGDEN SURGICAL SOCIETY, Orpheum Theater, Ogden, Utah, May 20-22. Dr. Irwin B. McQuarrie, 401 Eccles Bldg., Ogden, Utah, President.

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY, Los Angeles, May 24-28, Dr. H. P. House, 1136 West 8th St., Los Angeles 14, Secretary.

PACIFIC DERMATOLOGIC ASSOCIATION, Olympic Hotel and University of Washington, Seattle, July 9-10. Dr. Ervin H. Epstein, 447 29th St., Oakland 9, Calif., Secretary.

ROCKY MOUNTAIN CANCER CONFERENCE, Denver, July 8-9. Mr. Harvey T. Sethman, 835 Republic Bldg., Denver 2, Secretary.

SOCIETY FOR INVESTIGATIVE DERMATOLOGY, Belmont Plaza Hotel, New York, May 30-31. Dr. Herman Beerman, 255 South 17th St., Philadelphia 3, Secretary.

SOCIETY FOR VASCULAR SURGERY, Hotel Pierre, New York, May 31. Dr. George D. Lilly, 25 S.E. Second Ave., Miami 32, Fla., Secretary.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION, Alex Johnson Hotel, Rapid City, June 14-16. Dr. G. I. W. Cottam, 300 First National Bank Bldg., Sioux Falls, Secretary.

SOUTHERN OREGON MEDICAL SOCIETY, Oregon Caves Chateau, Oregon Caves, Ore., June 10. Dr. R. Ray Johnson, Grants Pass, Ore., Secretary.

SOUTHWEST ALLERGY FORUM, Hotel Muehlebach, Kansas City, Mo., June 14-16. Dr. Frederic Speer, 2601 Parallel Ave., Kansas City 4, Kans., Secretary.

STUDENT AMERICAN MEDICAL ASSOCIATION, Edgewater Beach Hotel, Chicago, June 15-17. Mr. Russell F. Staudacher, 535 North Dearborn St., Chicago 10, Executive Secretary.

THE ENDOCRINE SOCIETY, Hotel Statler, New York, May 28-30. Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City 3, Secretary.

UPPER PENINSULA MEDICAL SOCIETY, Escanaba, Mich., June 19-20. Dr. N. L. Lindquist, 1103 Ludington St., Escanaba, Mich., Secretary.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION, Biltmore Hotel, Los Angeles, June 10-13. Mrs. L. Amy Darter, Division of Laboratories, State Department of Public Health, Berkeley, Calif., Secretary.

WYOMING STATE MEDICAL SOCIETY, Henning Hotel, Casper, June 11-13. Dr. Glenn W. Koford, P. O. Box 1252, Cheyenne, Secretary.

FOREIGN

BRITISH MEDICAL ASSOCIATION, Cardiff, S. Wales, July 13-17. Dr. A. MaCrae, B. M. A. House, Tavistock Square, London W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Winnipeg, Manitoba, Canada, June 15-19. Dr. T. C. Routley, 135 St. Clair Avenue W., Toronto 5, Ontario, Canada, General Secretary.

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva and Zurich, Switzerland, Aug. 24-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

EUROPEAN CONGRESS OF ALLERGOLOGY, Copenhagen, Denmark, May 20-23. Dr. Egon Brunn, Gersonavej 8, Hellerup, Copenhagen, Denmark, Secretary General.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF ACUPUNCTURE, Kolpinghaus, Adolf-Kolping-Strasse 1, Munich, Germany, August 22-25. Dr. G. Bachmann, 29 Lilienstrasse, München 9, Germany, Organizer and Secretary.

INTERNATIONAL CONGRESS OF AUDIOLOGY, Leiden, Netherlands, June 5-6. Dr. H. A. E. ve Dishoeck, Leiden University, Leiden, Netherlands, President.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

INTERNATIONAL CONGRESS ON GENETICS, Bellagio, Italy, August 4. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

INTERNATIONAL CONGRESS OF GYNECOLOGY, Geneva, Switzerland, July 21-26, 1954. Dr. Maurice Fabre, 1, rue Jules-Lefebore, Paris IXe, France, General Secretary.

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE, Evian, France, Sept. 3-6. Prof. P. Delore, 13 rue Jarente, Lyons, France, Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem, Israel, August 3-7. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONIATRICS, Milan and Stresa, Italy, Sept 1-7. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP, London, England, July 20-25. Mr. W. R. LeFanu, % London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, England, Chairman.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY, Geneva, Switzerland, July 26-31, 1954. Prof. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Amsterdam, Netherlands, June 8-13. Dr. W. H. Struben, J. J. Viottastraat 1, Amsterdam, Netherlands, Secretary.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba President.

INTERNATIONAL CONGRESS OF RADIOLOGY, Copenhagen, Denmark, July 19-25. Professor Flemming Norgaard, 10 Oster Voldgade, Copenhagen K, Denmark, Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

INTERNATIONAL CONVENTION OF X-RAY TECHNICIANS, Royal York Hotel, Toronto, Canada, June 28-July 2. For information write: Miss Beatrice Hurley, R.T., Registrar, St. Catherine Hospital, East Chicago, Ind., U. S. A.

INTERNATIONAL FERTILITY ASSOCIATION, Henry Hudson Hotel, New York, N. Y., U. S. A., May 25-31. Dr. Abner I. Weisman, 1160 Fifth Avenue, New York 29. N. Y., U. S. A., Associate Secretary General.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL GYNAECOLOGICAL MEETING, Paris, France, May 22-23. For information write: Dr. Jacques Courtois, 1, rue Racine, St. Germain-en-Laye, Seine et Oise, France.

INTERNATIONAL HOSPITAL CONGRESS, London, England, May 25-30. Capt. J. E. Stone, 10 Old Jewry, London, EC2, England, Hon. Secretary.

INTERNATIONAL LEPROSY CONGRESS, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS, Bedford College, Regent's Park, London N.W.1, England, July 26-30. Dr. Ruth S. Eissler, 285 Central Park West, New York 24, N. Y., Hon. Secretary.

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

INTERNATIONAL VETERINARY CONGRESS, Stockholm, Sweden, Aug. 9-15. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

IRISH MEDICAL ASSOCIATION, Waterford, Ireland, July 1-4. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

PACIFIC SCIENCE CONGRESS, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS, Buenos Aires, Argentine, July 12-16. Secretaria del Congress, 763 Uriburu, Buenos Aires, Argentine.

WORLD CONFERENCE ON MEDICAL EDUCATION, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

WORLD MEDICAL ASSOCIATION, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary-General.

DEATHS

Holmes, Rudolph Wieser ⊕ Charlottesville, Va.; born in Chicago, June 27, 1870; Rush Medical College, Chicago, 1893; joined the faculty of his alma mater, where he became an associate in diseases of children, associate in obstetrics and gynecology, instructor in obstetrics and gynecology, associate professor, and professor emeritus; professor emeritus of obstetrics and gynecology at the University of Illinois College of Medicine in Chicago; associate professor of obstetrics at Northwestern University Medical School in Chicago from 1929 to 1936; an Associate Fellow of the American Medical Association, serving as chairman of its Section on Obstetrics, Gynecology and Abdominal Surgery, 1924-1925; past president of the Chicago Gynecological Society and the Central Association of Obstetricians and Gynecologists; formerly treasurer of the First Congress on Obstetrics and Gynecology; honorary fellow of the South Atlantic Association of Gynecologists; member of the Illinois State Medical Society and the American Gynecological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Obstetrics and Gynecology; formerly director of the American Committee on Maternal Welfare; while practicing in Chicago, served on the staffs of the Augustana, St. Luke's, Presbyterian, Henrotin, Passavant, and Cook County hospitals; died April 25, aged 82.

McMullen, Charles Gould ⊕ Niskayuna, N. Y.; born in Schenectady, N. Y., Feb. 2, 1874; Albany Medical College, 1898; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; past president of the Schenectady County Medical Society; at one time clinical professor of surgery at his alma mater; veteran of World War I; served on the board of trustees of Albany Medical College and was a member of the board of directors of the Citizens Trust Company of Schenectady for many years; president of the board of the Schenectady County Public Library; on the consulting staff of Mary McClellan Hospital in Cambridge and Ellis Hospital, Schenectady, where he was a member of the board of managers for many years; died Feb. 14, aged 79, of cerebral thrombosis.

Feigin, Samuel ⊕ New York City; born in Slutsk, Russia, March 13, 1895; University and Bellevue Hospital Medical College, New York, 1920; specialist certified by the American Board of Psychiatry and Neurology; past president of the New York Society for Clinical Psychiatry; member of the American Psychiatric Association; formerly assistant clinical professor of psychiatry at his alma mater; at one time consultant to the Federal District Court of the Southern District of New York; during World War II senior psychiatrist at the Selective Service and Induction Center; served as psychiatric consultant to the board of education and as psychiatrist for the police department; formerly assistant and later acting director of psychiatric division at Bellevue Hospital; died in Palm Beach, Fla., March 20, aged 58, of coronary thrombosis.

Emery, E. Van Norman ⊕ St. Louis; born in Toronto Sept. 5, 1889; University of Toronto Faculty of Medicine, Toronto, Canada, 1911; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association, Central Neuropsychiatric Association, and the American Orthopsychiatric Association; formerly assistant professor of psychiatry and mental hygiene at Yale University School of Medicine in New Haven, Conn.; at one time director of the Child Guidance Clinic in Los Angeles; lecturer in psychiatry at Washington University School of Medicine and professor in the school of social psychiatry; died March 7, aged 63, of cerebral hemorrhage.

Kiehle, Frederick Andrews ⊕ Palo Alto, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; professor emeritus at the University of Oregon Medical School, Portland; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the Oregon State Medical Society, American Academy of Ophthalmology and Otolaryngology, and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; served on the staffs of the Doernbecher Memorial Hospital for Children and the Multnomah Hospital in Portland, Ore.; died March 22, aged 80.

Countryman, John Edgar ⊕ Arch Cape, Ore.; born April 7, 1870; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1893; member and past president of the North Dakota State Medical Association and for several years member of the North Dakota State Board of Medical Examiners; fellow of the American College of Surgeons; served in the medical corps of the U. S. Army in France during World War I; formerly practiced in Grafton, N. D., where he was attending surgeon at the Grafton Deaconess Hospital from the time of its erection; died in Wheeler Feb. 15, aged 82, of coronary thrombosis.

Brunson, Sophia Boatwright ⊕ Sumter, S. C.; Ohio Medical University, Columbus, 1902; past president of the Sumter County Medical Society; died March 9, aged 88.

Cieri, Joseph Domenick ⊕ Piedmont, Calif.; Washington University School of Medicine, St. Louis, 1931; on the staff of Providence Hospital in Oakland; died Jan. 26, aged 51, of acute myocardial infarction and coronary arteriosclerosis.

Crees, Matilda Adella Walter, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1894; died Jan. 2, aged 85.

Ganamey, Anton Accad, Los Angeles; University of St. Joseph, Beirut, Syria, 1903; died Feb. 7, aged 75, of arteriosclerosis.

Gayman, Byron Roosevelt ⊕ Muskogee, Okla.; born in Aitkins, Minn., Oct. 7, 1899; University of Oklahoma School of Medicine, Oklahoma City, 1924; served during World Wars I and II; in private practice from 1925 to 1931 at Butler and Foss, Okla.; entered the VA service at Oklahoma City on Feb. 16, 1931; after a tour of duty there and at Biloxi, Miss., was transferred on July 1, 1936, to the VA Hospital, where he was chief of the urologic section, and where he died Feb. 14, aged 53, of periarteritis nodosa and bronchopneumonia.

Haynes, Aaron Lorenzo, Mobridge, S. D.; Drake University Medical Department, Des Moines, 1895; formerly practiced in Toledo, Iowa, during which time he was a founder of the Tama County Medical Society, serving as its first treasurer, and later as president; served on the staff of the Minnesota School for Feebleminded in Faribault, Minn.; died in Bismarck (S. D.) Hospital Jan. 28, aged 84, of adenocarcinoma of the colon.

Heller, Jacob ⊕ Brooklyn; Cornell University Medical College, New York, 1899; an Associate Fellow of the American Medical Association; for many years on the staff of the Brooklyn Women's Hospital and the Bedford Maternity Hospital; died in Mount Sinai Hospital Feb. 16, aged 77, of carcinoma of the prostate.

Jope, Clifford Henry ⊕ Senior Surgeon, U. S. Public Health Service, San Francisco; Indiana University School of Medicine, Indianapolis, 1944; interned at the Southern Pacific General Hospital; served during World War II; worked with the Mutual Security Agency mission to Indochina, serving as regional officer for Viet-Nam at the time of his death; formerly assigned to the division of chronic diseases and tuberculosis; died in Indochina Feb. 27, aged 32, of bulbar poliomyelitis.

Keever, Claude M. ⊕ Belpre, Ohio; Medical College of Ohio, Cincinnati, 1896; member of the West Virginia State Medical Association; formerly practiced in Parkersburg, W. Va., where he was affiliated with St. Joseph's and Camden Clark Memorial hospitals; died March 15, aged 77, of coronary thrombosis.

⊕ Indicates Member of the American Medical Association.

Kirkbride, Willis Joseph ⊕ Toledo, Ohio; Marquette University School of Medicine, 1938; served during World War II; affiliated with Robinwood, Mercy, and Maumee Valley hospitals; died in North Shores, Mich., March 8, aged 42, of an accidental gunshot wound.

Lambert, Rudolph Harold ⊕ Kalamazoo, Mich.; Detroit College of Medicine and Surgery, 1916; member of the American College of Chest Physicians and the American Trudeau Society; served as medical director of the American Legion Hospital in Battle Creek and as medical superintendent of the Fairmount Hospital; died Feb. 27, aged 61.

Lanier, John Edward ⊕ Moultrie, Ga.; University of Georgia Medical Department, Augusta, 1900; died Jan. 24, aged 80.

Launer, Louis ⊕ Liberty, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1915; past president of the Sullivan County Medical Society; affiliated with Maimonides Hospital; died March 10, aged 67.

Lennarson, Vernon Elwyn Clarence ⊕ Waukegan, Ill.; State University of Iowa College of Medicine, Iowa City, 1932; specialist certified by the American Board of Pediatrics; served as instructor in the department of pediatrics at Northwestern University Medical School in Chicago; on the staffs of the St. Therese's and Victory Memorial hospitals; died Feb. 28, aged 45, of cardiac insufficiency.

Magee, Charles Benjamin, Pretty Prairie, Kan.; Kansas City (Mo.) Hahnemann Medical College, 1908; died in the Memorial Hospital, Kingman, March 7, aged 69, of coronary thrombosis.

Margulis, Abraham Aaron ⊕ St. Louis; Washington University School of Medicine, 1909; formerly on the faculty of St. Louis University School of Medicine; served during World War I; for many years affiliated with Jewish Hospital; died Feb. 10, aged 66, of heart disease.

Markell, William Ody ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1914; member of the American Academy of Orthopaedic Surgeons; affiliated with Children's Hospital in Pittsburgh and Columbia Hospital in Wilkinsburg, where he died Feb. 12, aged 66, of hepatorenal failure.

Nieweg, Julius William, Duncan, Okla.; Barnes Medical College, St. Louis, 1895; on the staff of the Weedn Hospital, where he died Feb. 17, aged 83.

Noyes, George Burton ⊕ Centuria, Wis.; Rush Medical College, Chicago, 1903; secretary of the Polk County Medical Society; died in the Ladd Memorial Hospital, Osceola, Feb. 26, aged 75, of cerebral hemorrhage.

O'Connor, Bernard Aloysius ⊕ Harrison, N. J.; Fordham University School of Medicine, New York, 1914; fellow of the International College of Surgeons and the American College of Surgeons; served overseas during World War I; vice-president of West Hudson County Trust Company; medical director and chief surgeon at St. Michael's Hospital, where he died Feb. 15, aged 63, of arteriosclerotic heart disease with coronary insufficiency.

Odom, Marvin Milton ⊕ Gretna, La.; Atlanta College of Physicians and Surgeons, 1913; formerly parish coroner; member of the parish board of health and was at one time president of the city board of health; member of the board of administrators of the East Louisiana State Hospital at Jackson; died Jan. 27, aged 69, of carcinomatosis, angina pectoris, and Parkinson's disease.

Pate, Louis Hinkle ⊕ Carlsbad, N. Mex.; University of Arkansas School of Medicine, Little Rock, 1905; served as a member of the school board; president of the Carlsbad National Bank and the Carlsbad Building & Loan Association; died March 7, aged 79, of carcinoma of the colon.

Pease, Edmund Morris, Medfield, Mass.; University Medical College of Kansas City, Mo., 1907; member of the New England Society of Psychiatry; served on the staffs of the Boston State Hospital and the Medfield State Hospital; died in the Leonard Morse Hospital, Natick, Feb. 13, aged 75, of chronic myocarditis.

Petronella, Samuel James ⊕ East Chicago, Ind.; Regia Università degli Studi di Roma Facolta di Medicina e Chirurgia, Italy, 1934; member of the Industrial Medical Association; died April 1, aged 44.

Rigterink, Herman A. ⊕ Kalamazoo, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; served on the staffs of the Borgess and Bronson hospitals; died in St. Lawrence Hospital, Lansing, Feb. 5, aged 83.

Roberts, George James, Westminster, Ohio; Toledo Medical College, 1893; Cleveland University of Medicine and Surgery, 1897; served on the staff of the Memorial Hospital in Lima; died in Sawyer Sanatorium in Marion, March 13, aged 88, of a heart attack.

Roop, Henry Tait, Minneapolis; Chicago Physio-Medical College, 1891; died March 9, aged 82.

Sasaki, George Ryoichi ⊕ O'Fallon, Mo.; Marquette University School of Medicine, Milwaukee, 1936; affiliated with St. Joseph's Hospital in St. Charles, where he died Feb. 21, aged 49, of cerebral hemorrhage.

Satterfield, Benjamin W., St. Louis; Meharry Medical College, Nashville, Tenn., 1925; served during World War II; affiliated with St. Mary's Infirmary, Peoples Hospital, and Homer G. Phillips Hospital, where he died Jan. 19, aged 56, of cirrhosis of the liver.

Schechter, Eliot ⊕ New York City; University and Bellevue Hospital Medical College, New York, 1913; served during World War I; on the staffs of the Knickerbocker and Sydenham hospitals; died in Mount Sinai Hospital March 25, aged 64.

Spotanski, Stanley Joseph, Cleveland; Western Reserve University School of Medicine, Cleveland, 1915; died Jan. 15, aged 65, of bronchopneumonia.

Stone, Jacob Clay, Oneida, Ill.; Kentucky University Medical Department, Louisville, 1903; died in the Hollywood (Fla.) Hospital Jan. 13, aged 75, of cerebral hemorrhage and arteriosclerosis.

Thompson, George Hocken ⊕ Pittsfield, Mass.; McGill University Faculty of Medicine, Montreal, Canada, 1899; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; affiliated with Pittsfield General and St. Luke's hospitals; died March 8, aged 76, of a virus infection.

Wright, Herbert L., Sasakwa, Okla.; National Medical University, Chicago, 1906; died in Wewoka Feb. 12, aged 82, of pneumonia.

DIED WHILE IN MILITARY SERVICE

Carpenter, Thomas Delmont ⊕ Columbus, Ind.; Indiana University School of Medicine, Indianapolis, 1944; served during World War II; released to inactive duty in May, 1946; recalled into the active military service on Oct. 30, 1952; lieutenant (jg), U. S. Naval Reserve; reported to the U. S. Marine Corps, Fifth Base Depot in Barstow, Calif., where he was serving at the time of his death March 7, aged 31, of cerebral hemorrhage.

Stafford, Frederick Burcham, Sherman, Texas; Northwestern University Medical School, Chicago, 1930; served overseas during World War II; released to inactive duty on March 7, 1946; in January, 1950, assigned to duty as flight surgeon at the Naval Air Station, Spokane, Wash.; lieutenant commander in the medical corps of the U. S. Naval Reserve; ordered to the Naval Air Station, Columbus, Ohio, where he died March 9, aged 49, of a heart attack.

GOVERNMENT SERVICES

ARMY

New Commandant for Medical Center.—Change of Command ceremonies at Walter Reed Army Medical Center, Washington, D. C., recently marked the retirement from the Army of its commanding general for the past four years, Major Gen. Paul H. Streit (MC). Major Gen. Leonard D. Heaton (MC) assumed command April 1. The ceremonies were held in Walter Reed's Formal Gardens. A brochure containing the best wishes and names of 2,400 civilian employees was presented to General Streit. He and Mrs. Streit will reside at their new home, 4721 Falstone Ave., Chevy Chase, Md. General Heaton is the 10th officer to command the medical center, which includes the Army Medical Service Graduate School, the Army Central Dental Laboratory, the Army Prosthetics Research Laboratory, and Walter Reed Army Hospital. He was born in West Virginia and is a diplomate of the American Board of Surgery and a member of Alpha Omega Alpha, honorary medical fraternity; the Halsted Club; California Academy of Medicine; the San Francisco Surgical Society; and the Pacific Coast Surgical Association.

Major Gen. Paul H. Streit (left to right), Major Gen. George E. Armstrong, Army Surgeon General, and Major Gen. Leonard D. Heaton.

Personal.—Col. Floyd L. Wergeland (MC), chief, Education and Training Division, Office of the Surgeon General, has been designated to attend the 1953-1954 term at the National War College, Fort Lesley J. McNair, Washington, D. C. Colonel Wergeland will be the first medical officer in four years to be selected to study at the school.

NAVY

Training Courses for Reserve Officers.—Training courses of two weeks' duration for medical corps, medical staff corps, hospital corps, and ensign, probationary (medical) officers will be available during July, August, and September, 1953. These courses have been designed to provide active duty for training, information, and recommended techniques to be employed in specialized fields closely related to naval medicine. A class in insect and rodent control is scheduled to convene at the Naval Air Station, Jacksonville, Fla., on the first and third Wednesdays of each month. The 1st, 3rd, 4th, 6th, 8th, and 9th naval districts and the Potomac River Naval Command have been assigned a quota for this course during the quarter. A similar course is scheduled to be conducted at the Naval Air Station, Alameda, Calif., for the benefit of male medical personnel residing in the 11th, 12th, and 13th naval districts. Information and convening dates may be obtained by addressing an inquiry to the Commandant, 12th Naval District, or the Commanding Officer, Naval Air Station, Alameda, Calif.

Ensign, probationary (medical) officers who desire to perform two weeks of active duty for training with pay and allowances at a naval medical research facility or a naval hospital during their summer vacation should submit their request to the commandant of their home naval district at the earliest practicable date. This active duty for training program is scheduled to begin on July 6, 1953.

One Year of Instruction in Radiobiology Available.—The Bureau of Medicine and Surgery desires applications from interested active duty medical officers, below the rank of captain, for a one year course of instruction in radiobiology. The course, which will convene on Aug. 3, consists of four parts, the first two of which will be given at Reed College, Portland, Ore.

The first part, about six weeks, consists of a general review of basic mathematics and physics. The second part, beginning Sept. 21 and ending Jan. 23, 1954, consists of academic instruction in radiobiology. This will include instruction in nuclear physics, biophysics, human genetics, radiochemistry, and the biological effects of ionizing radiation. Part three, given at Sandia Base, Albuquerque, N. Mex., consists of a one week weapons orientation course. The fourth and final part, about three months, consists of training in the techniques of using radioisotopes. This part of the instruction is given at Oak Ridge, Tenn.

The objectives of this training are to provide medical officers with sufficient technical background to serve as staff advisors in all phases of the medical aspects of atomic defense; as advisors in the medical problems associated with the use of atomic reactors for power purposes; and as instructors in the various service training centers in this specialty. Interested officers, both regular and reserve, below the rank of captain should make application in accordance with current directives or, if the time element requires such action, application may be submitted by dispatch before June 1, 1953. Each request must contain the applicant's agreement to serve on active duty for a period of three years following completion of the course of instruction.

Appoint Research Director of Medical Acceleration Laboratory.—Dr. James D. Hardy of the department of physiology, Cornell University Medical College, will become director of research at the Naval Aviation Medical Acceleration Laboratory at Johnsville, Pa., on July 1, 1953. He will also be professor of physiology at the University of Pennsylvania School of Medicine. An affiliation was arranged in 1950 between the Aviation Medical Acceleration Laboratory and the University of Pennsylvania, under which the scientific and educational facilities of both institutions were made available to the staff and graduate students of both groups. Dr. Hardy intends to continue certain research projects that he is now carrying on at Cornell. He was trained in physics (Ph.D., Johns Hopkins, 1930), has been interested in biophysics and physiology, and was in service with the Navy during World War II.

Personal.—Rear Adm. Lamont Pugh, the Surgeon General, was the guest speaker at a Public Health Forum of the Harvard School of Public Health at Boston, April 28. His subject was "The Global Concept of Preventive Medicine in the U. S. Navy." . . . Rear Adm. Clarence J. Brown, assistant chief of the Bureau of Medicine and Surgery, left Washington April 17 to visit Navy Medical Department facilities in Europe, Africa, and the Near East. Admiral Brown will also meet with command personnel of the various activities to discuss problems concerning the adequacy of existing facilities or of medical department personnel.

PUBLIC HEALTH SERVICE

Award for Tests for Syphilis.—Ad Harris, chief, serology section of the Venereal Disease Research Laboratory at Chamblee, Ga., received the first Kimble methodology research award at a dinner in his honor in Atlanta, Ga., March 23. Dr. Albert V. Hardy, director, Bureau of Laboratories, Florida State Board of Health, presented the plaque. Others who paid tribute to Mr. Harris included Dr. R. A. Vonderlehr, regional medical director of the Public Health Service, Atlanta, and Dr. Sidney Olansky, director, Venereal Disease Research Laboratory, Chamblee. Mr. Harris voluntarily shared the $500 stipend with the four technicians who assisted in the research work, E. P. DelVecchio, Mrs. Virginia Falcone, Miss Margaret Reidel, and A. A. Rosenberg. He was nominated for the award by Dr. Olansky and Dr. John F. Mahoney, commissioner of health, New York City, for his work as the principal developer of three standard syphilis diagnostic tests. These procedures, known as the VDRL tests because they were devised at the Venereal Disease Research Laboratory, are used by more than 40 state public health laboratories, by the U. S. Army, and by other agencies throughout the world. He was selected for the honor by a vote of state laboratory directors and in competition with a number of other public health scientists throughout the United States and Canada. Mr. Harris was in the Army for nine years, in laboratory and pharmacy work, and was trained at the Army Medical School. He joined the Public Health Service, at Cleveland, in 1931. He went to the Venereal Disease Research Laboratory, then at Staten Island, N. Y., in 1933. In 1950, when the laboratory was moved to Chamblee, Mr. Harris headed a staff of 13 in the serology section who relocated the VDRL. He is a member of the World Health Organization's Expert Panel on Venereal Diseases and Treponematoses and in 1950 went to Paris to preside as chairman of that panel's subcommittee on serology and laboratory aspects.

Sanitation in Trailer Courts.—Because of the increasing number of persons living in trailers and the threat to public health posed by trailer courts that are operated in an insanitary manner, the Public Health Service has prepared a manual of trailer court sanitation, including suggested ordinances and regulations that may be adopted by local governments. The manual resulted from many requests from state and municipal health authorities and from industry for standards that would be broad enough in scope for nationwide use, yet easily adapted to local regulations. It is designed to serve as a guide to trailer court owners and operators, federal agencies, and state and local health and zoning authorities. It incorporates recommendations from such sources as the Conference of State Sanitary Engineers and bears the endorsement of the Conference of Municipal Public Health Engineers. The manual was printed and is being distributed to court operators by the Trailer Coach Manufacturers Association. The Public Health Service is distributing it to public health agencies in states and municipalities. The standards established in the manual are for site provisions; location, construction, and maintenance of service buildings; water supply and sewage disposal; refuse disposal; and insect and rodent control. Standards for electricity, fuel, and fire protection are also given.

Death Rate Less Than Ten Per One Thousand Population.—For the fifth year in succession, the death rate for the United States was less than 10 per 1,000 population, according to the National Office of Vital Statistics. Provisional figures just released indicate that the rate for 1952 was 9.6 per 1,000 compared to 9.7 for 1951. The 1952 rate is the same as that for 1950. There were 1,494,000 deaths recorded in 1952, and 1,486,000 in 1951. Live births reached a record high of 3,824,000 in 1952 compared to 3,758,000 in the previous year. There was an increase in the number of infant deaths, but the rate for 1952, 28.6 per 1,000 live births, declined slightly from the 1951 rate. Mortality from the infective and parasitic diseases showed a continued decrease, though death rates for meningococcic infections and acute poliomyelitis were higher in 1952 than in 1951. The declines in death rates for tuberculosis and for syphilis have been remarkable. Both of these have decreased over 60% in the three years since 1949. Mortality rates for whooping cough reached a record low. Despite an increase in the number of cases of measles reported in 1952, fewer deaths occurred from this cause than in 1951. For the third year in succession there has been a slight increase in the reported incidence of meningococcic infections with a rise in the death rate from 0.7 in 1951 to 0.9 in 1952. The incidence of poliomyelitis in 1952 has been high in comparison with the previous two years and has even surpassed that of 1949 when the death rate rose to 1.8.

VETERANS ADMINISTRATION

Psychiatric and Neurological Residencies.—The VA Hospital at Houston, Texas, has vacancies in psychiatry and neurology residencies. The psychiatry residency, a full three year program, and the neurology residency, a two year program, are both approved by the American Board of Psychiatry and Neurology and by the American Medical Association. The programs are under the supervision of Baylor University College of Medicine. A new 200 bed, air-conditioned neuropsychiatric wing is expected to be ready for occupancy by July 1, 1953.

Two plans are applicable to these programs: (1) straight residency of one, two, or three years; salary, $2,640 to $3,300 annually; and (2) residency and staff appointment, in which the physician may serve one, two, or three years as a resident, obligating himself to one, one and one-half, or two years of staff service, respectively; all of these two to five years are at regular staff salary, $5,500 to $8,360 annually. The hospital is a part of the Texas Medical Center and is used as a teaching hospital for medical students.

MISCELLANEOUS

National Science Foundation Fellowships.—The National Science Foundation has awarded to United States citizens 556 graduate fellowships for the academic year 1953-1954. The successful fellows were selected from 3,298 applications from all parts of the continental United States, Hawaii, and Puerto Rico. The list of fellowship winners includes 515 predoctoral candidates and 41 postdoctoral. All fellows were selected on the basis of ability, with awards made in cases of substantially equal ability so as to result in a wide geographical distribution. Predoctoral applicants were required to take examinations administered by the Educational Testing Service, Princeton, N. J., for scientific aptitude and achievement. Postdoctoral applicants were not required to take examinations, but their records and recommendations were screened by panels of eminent scientists in each field in an evaluation procedure administered by the National Research Council.

A total of 180 awards were made to first year graduate students. A total of 166 of the awards were made to graduate students in the intermediate years, 169 to terminal year predoctoral students, and 41 to postdoctoral fellows. The largest group of fellowships, 129, was awarded in chemistry. In other fields the number of awards were: physics, 115; engineering, 63; mathematics, 56; zoology, 38; biochemistry, 35; geosciences, 26; botany, 19; microbiology, 18; biophysics, 14; medical sciences, 13; genetics, 11; psychology and anthropology, 10; and agriculture, 9.

Fellows may pursue their training at accredited nonprofit institutions of higher education of their own choice in the United States or similar institutions abroad approved by the foundation. Stipends for fellows in their first year of graduate study will be $1,400; those for the intermediate years of graduate study will be $1,600; and those for students in their terminal year of graduate study will be $1,800. Postdoctoral fellows will receive $3,400. Additional allowances for dependents, tuition, and other normal expenses are provided. In accepting a National Science Foundation Graduate Fellowship, a fellow is not committed to accepting future employment with the government, nor is the government committed to offering employment to any fellow. It is expected that the announcement concerning National Science Foundation Graduate Fellowships for 1954-1955 will be made about Oct. 1, 1953. Application forms will not be available until that time.

FOREIGN LETTERS

BRAZIL

Histological Lesions in Snake Poisoning.—Drs. M. Freitas Amorim, R. Franco de Mello, and F. Saliba, of the São Paulo Butantan Institute, recently published a report on the histological lesions found in 24 animals inoculated with snake venom. The first 15 animals (8 rabbits and 7 rats) were injected with the venom of Bothrops jararaca Wied 1824, and the second lot of 9 animals (4 rabbits, 2 rats, and 3 dogs) were inoculated with the venom of Crotalus terrificus terrificus Laurentius 1786. Two rabbits were inoculated intravenously, three dogs received intramuscular injections, and the rest were injected subcutaneously. The animals were autopsied from 5 minutes to 24 days after the first injection. The doses (0.25 to 50 mg.) were administered all at once or over several consecutive days.

Besides severe hemorrhage and edema with coagulation necrosis of the subcutaneous tissue and the voluntary muscles at the site of injection, hemorrhages were frequently found in the internal organs of animals inoculated with bothropik venom. In the crotalic poisoning they were rarely present in internal organs but were found oftener in the nervous system. Thus, it seems to the authors that visceral hemorrhages appear more frequently in cases of experimental poisoning by Bothrops snakes than in the experimental crotalic poisoning by C. terrificus terrificus of South America and perhaps by C. adamanteus of North America as described by Pearce, who demonstrated that the venom of C. adamanteus produces hyperemic hemorrhagic glomerular lesions in the kidney. In 9 of the 15 animals injected with bothropik venom hyaline thrombosis was found in the capillaries, and in 7 of these the thrombosis was in the lungs. If the 2 rabbits which were given the venom by intravenous injection are excluded, there were 9 cases of hyaline thrombosis in the capillaries of 13 inoculated animals, with thrombosis in the lungs in 7. Hyaline thrombosis of capillaries occurred only in the animals inoculated with bothropik venom and not once in the animals inoculated with crotalic venom. The authors call attention to the practical value that such a lesion may have in the diagnosis of snake poisoning after this fact is confirmed in a larger number of cases. Up to the present, other investigators have not attributed such importance to the previously mentioned lesion. Hyaline necrosis of the capillary and arteriolar walls, as described by Rotter, was found in only one case, in the skin at the place of the injection. With regard to renal injuries, only hyperemic hemorrhagic glomerular lesions were found in bothropik poisoning, which were in part identical to those described by Pearce in experimental poisoning with C. adamanteus. No signs were found of glomerulonephritis in the animals with bothropik venom such as were found in man by MacClure (Bothrops jararacussu) as well as by the authors in one human case to be reported. Signs of local glomerulonephritis were found only in the three dogs inoculated with the venom of C. terrificus terrificus. Therefore, the type of lesion produced by snake poison seems to depend on the zoological species of the animal used in the experiment. It also varies according to the quality of the venom, which in turn depends on the genus and probably also on the species of the snake from which the venom was obtained.

Obliterative Peripheral Vascular Disease.—Up to June, 1951, 126 patients with chronic obliterative peripheral vascular disease had been treated at the first ward of the surgical department of the São Paulo Hospital das Clinicas. Drs. L. E. Puech Leão and J. Bueno Neto have published an analysis of those cases, including 80 cases of obliterative arteriosclerosis and 46 cases of obliterative thromboangiitis, 22 patients having been excluded from the analysis owing to incomplete information. In 19 (18.2%) of the 104 cases studied extensive involvement necessitated major amputation at admission, and in 66 (63.5%) ulcers or gangrene involved small distal areas. This emphasizes the problem of a better knowledge of these diseases, to enable the practitioner to make an earlier diagnosis. On the other hand, the percentage of cases in which amputation of limbs was necessary (34.7% of cases with ulcer or gangrene) permits a more optimistic attitude than that generally adopted by practitioners. Twenty-three patients were treated only by subcutaneous injection of the oxygen and carbon dioxide mixture; 21 were treated by this and other methods; 21 by intravenous injection of hypertonic salt solution; 22 by sympathectomy; and 12 by methods other than those previously cited. The least favorable results were obtained with the hypertonic salt solution, and the most favorable with sympathectomy. The injection of oxygen and carbon dioxide alone or associated with other methods gave good results in about 50% of cases. The response to treatment was better in thromboangiitis than in arteriosclerosis, no matter what method was used.

Complicated Ectopic Pregnancy.—Drs. Osir Cunha and Jairo P. do Amaral published an analysis (*Rev. brasil. cir.* **24**:27, 1952) of 249 consecutive cases of ectopic pregnancy observed at the Rio de Janeiro Municipal Emergency Hospital during 1950 and 1951. There were complications in all cases but no fatalities. The total number of cases was about equally divided between the two years, 123 having occurred in 1950 and 126 in 1951, which led the authors, for expediency, to make a detailed analysis of only the 126 cases that occurred in 1951.

This total of 126 represents only 0.11% of the total of 111,377 cases in which treatment was given at the hospital during that year. A truer picture of the situation is obtained when the 126 cases are considered as a percentage of the total of emergency surgical cases attended at the hospital, which is 7.15%, or better only of those involving female patients, which is 16.28%; the latter figure represents a rather high incidence. The age group 21 to 30 years included 63.49% of the patients, a percentage which reached 73.01 among white women, probably as a consequence of more frequent use of birth control practices.

The 126 cases were divided into three varieties: ruptured tubal pregnancy (123 cases), tubal miscarriage (2 cases), and ovarian pregnancy (1 case), so labeled according to Spiegelberg's postulates. The principal signs and symptoms were sudden pain (in 98.41% of cases), lipothymia (96.82%), amenorrhea and irregular menses (94.55%), paleness and perspiration (94.46%), and painful Douglas pouch (80.15%). The preoperative diagnosis was correct in 97.62% of cases. Once the diagnosis was established, the routine adopted was to perform the surgical treatment immediately, no matter what the condition of the patient. Even the presence of shock was not considered a contraindication or a reason to delay the surgical procedures. The authors believe that this general policy, the good organization of the hospital, and the experience of its medical staff were the factors responsible for the absence of mortality.

Surgical Risk in Gynecologic Patients with Heart Impairment.—Dr. José Leite, internist of the Gynecological Institute, Rio de Janeiro University, has reported (*An. brasil. ginec.* **34**:71, 1952) his experience with 77 patients with heart disease with or without associated diseases, concerning the risk of anesthesia and major gynecologic operations. All but four patients withstood the anesthetic and operative trauma. The death of three patients was attributed to thymus persistence, narrow aortic lumen, and auricular flutter (mitral disease during the induction of cyclopropane anesthesia). The fourth patient who died had hypertension, suffered from central vascular accidents, and showed signs of some focal infection. She died 96 hours after operation.

The author emphasizes the importance of recent heart attacks, coronary infarction, and cerebral accidents within less than 90 days as well as resistance to routine treatment for cardiac disease or persistent or unfavorable laboratory find-

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The items in these letters are contributed by regular correspondents in the various foreign countries.

ings. Obesity, anemia, and malnutrition were more relevant factors than age, type of lesion, or any special or laboratory findings in the evaluation of the operative risk. The best gaseous anesthetic for the heart patients was found to be a mixture of ether and oxygen and helium. Cyclopropane was dangerous. Results of use of nitrous oxide were inconclusive. Pentothal (Thionembutal) was an excellent drug for inducing anesthesia in hypertensive patients. As a rule, diastolic pressure variations deserve more attention than systolic variations, as they are more indicative of the onset of coronary attacks.

Mistaken Intramuscular Injection of BCG.—Drs. A. Moraes Passos and J. Soares Martins of the tuberculosis division, São Paulo State Department of Health, reported (*Clínica tisiol.* 7:295, 1953) a case of a tuberculin-negative adult who by mistake was given by injection the contents of a 5 cc. tube containing 100 mg. of BCG vaccine for oral administration. The vaccine had been prepared eight days previously in the laboratory of the Ataulpho de Paiva Foundation under the direction of Dr. Arlindo de Assis. The abscess that formed at the site of injection formed an ulcer after 25 days with a diameter of 6 cm. Roentgenographic examination performed two months later disclosed a normal chest, and there was a negative reaction to an intracutaneous Mantoux test with 1 mg. of old tuberculin. At this time the patient went home with the wound completely healed, remaining out of control for two years and eight months. At the time of writing a chest roentgenogram disclosed no abnormalities, the Mantoux reaction was positive to 0.0001 mg. of old tuberculin, the gastric washings contained no tubercle bacilli, and the blood findings and the sedimentation rate were normal.

The authors discuss the case from the standpoint of high total doses of BCG vaccine being administered by small amounts by several techniques, by various routes, and for different purposes. This case in which a single massive dose was given by injection is compared with those reported by Saié and Chevé, Weill-Hallé, and Meunier. The authors believe this case is one more proof of the innocuousness of BCG vaccine, as the dose injected intramuscularly is 2,500 times greater than the amount employed subcutaneously and 1,000 times greater than the amount given intracutaneously. Attention is called to the opinion of Meunier who, reporting his cases of intramuscular injection of 75 mg. of dry BCG, affirms that this is the largest single amount given parenterally ever known by the Paris Pasteur Institute.

ISRAEL

Treatment of Hypertension.—At the Congress of the Israel Medical Association (Haifa, November, 1952), Dr. Daniel Brunner of the Danolo Government Hospital in Jaffa discussed the treatment of hypertension with hexamethonium bromide (Vegolysen) and veratrum viride (Veriloid) singly and in combination, both administered orally. By the use of these drugs it is possible to reduce the blood pressure of the hypertensive patient to normal or even to collapse levels. The patients differ only with respect to the dose required to produce this effect. The main difficulty in the clinical use of these drugs is their tendency to produce serious side-effects, which may appear prior to the desired hypertensive response. Veratrum viride causes nausea, vomiting, and other dyspeptic complaints. Hexamethonium bromide produces obstinate obstipation and occasionally even paralytic ileus, dysuria, and difficulties in visual accommodation.

On the assumption that these drugs attack the complex system of hypertension at different points, Brunner used the two drugs in combination. He found that as a result total dosage could be reduced and undesirable side-effects decreased or eliminated. In addition, certain undesirable actions of one drug were nullified by the second. For instance, veratrum viride tends to produce bradycardia, and hexamethonium bromide sometimes produces tachycardia; veratrum viride sometimes causes diarrhea, and hexamethonium bromide constipation. Satisfactory results with the combined use of these medications were achieved by a total daily dosage of 1,500 to 2,000 mg. of hexamethonium bromide and 10 to 16 mg. of veratrum viride. The drugs were administered orally in four doses every three to four hours during the day.

Forty-five cases of hypertension, many of which were followed up for a period of one year, were summarized in Dr. Brunner's lecture. The results were considered good when treatment produced either normal blood pressure or an average decrease in systolic pressure of at least 45 mm. Hg and diastolic of at least 20 mm. Hg; fair results were achieved when the decrease was less but enough to produce marked improvement. In 13 cases of premalignant hypertension (diastolic blood pressure above 120 mm. Hg), good results were obtained in 6 cases and fair results in 2. In 18 cases of sustained hypertension, 11 presented definite evidence of renal, cardiac, or eyeground involvement, while 7 showed no signs of disease in these organs. Among these patients good results were obtained in nine and fair results in seven. In six cases of labile hypertension good results were obtained in all. In five cases of systolic hypertension with normal diastolic pressure, good results were obtained in two cases and fair results in two cases; one case showed no improvement. In the last two groups good results can be expected from veratrum viride. Patients suffering from arteriosclerotic hypertension, who are usually over 60 years of age, tolerate veratrum viride, which produces fewer side-effects and more stability of the blood pressure. Among the patients were two with malignant hypertension. The impression in these cases was that treatment prolonged life for some months, but the diseases terminated fatally in both instances with signs of uremia and cardiac decompensation. In both patients papilledema and retinal hemorrhages disappeared during therapy.

Hexamethonium bromide works even in cases of nephrogenic hypertension, in which a humoral instead of a neurogenic factor is assumed. According to the author there is no doubt that the treatment is of greater value in cases of malignant, premalignant, and sustained hypertension, and serious hypertension due to chronic glomerulonephritis. It is still uncertain whether veratrum viride and hexamethonium bromide are the medicaments of choice for treatment of patients with labile hypertension and arteriosclerotic hypertension. Contrary to other observations, Brunner emphasized that the oral use of hexamethonium bromide is as effective as subcutaneous injections. He found it difficult to maintain a stable blood pressure by oral as well as by subcutaneous therapy. Marked diurnal variations were always encountered. The author felt that the concept of fixed hypertension is in itself not true in the sense that the blood pressure in hypertensive patients is not stable but shows marked variability if examined at frequent intervals during the day. The blood pressure, under the influence of veratrum viride and hexamethonium bromide, shows similar variations, but these variations were present on an average lower pressure level. In other words, the maximal pressures of treated patients corresponded more or less to the minimal pressures recorded prior to therapy. The principal aim in therapy of hypertension should be to maintain these patients at a blood pressure level near to normal while they are living their usual lives, which is impossible when the patient is dependent on injections. All patients should be hospitalized until proper dosage of drugs has been determined.

New Hebrew Historical Journal.—The Israel Society of the History of Medicine and Science published a new quarterly journal, the first number appearing in the autumn of 1952. In Israel there is a small group of research workers active in this field who have published articles both here and abroad. The research facilities have been greatly enhanced by the bestowal of the splendid medicohistorical library by the late Prof. Harry Friedenwald of Baltimore to the Hebrew University. Now a special journal has been inaugurated to promote further investigations. Although the journal *Koroth* is published in Hebrew, a detailed summary in English is appended to provide a link with the scholars outside this country. The first issue included the following subjects: physics in the Stoic period, teaching of the history of medicine and science, Thomas Hodgkin, and a manuscript on the anatomy of man by Rabbenu Saadya written during the 12th century.

LONDON

Britain's Diet Under Survey.—Rich and poor are eating much more nearly alike than before the war, states the first annual report of the National Food Survey Committee under the Ministry of Food. The information in the 131 page report was obtained from housewives who entered all food purchases and gifts in logs supplied by the committee. They represented a cross section of the population. The committee graded families as follows: class 3, in which the income exceeds £13 ($36.40), a week; class B, £8 ($22.40) to £13 ($36.40); class C, £4 10s. ($12.60) to £8 ($22.40); and class D less than £4 10s. ($12.60). Class A families spent an average of 21s.4d. ($3) per person weekly on food in 1950. The corresponding amount for class D was 15s.3d. ($2.14) and for old age pensioners' households 15s. ($2.10).

The committee made an approximate comparison with the situation before the last war. In 1936-1937 average expenditure was 8s.11½d. ($1.25), and in 1950 14s.6½d. ($2.04). The difference between the highest and lowest expenditure fell from 10s.10d. ($1.52) before the war to 4s.1d. (57 cents). "This substantial reduction in social class differences," it says, "was achieved largely by the levelling-up of expenditure on the part of the lower class. All classes spent more in 1950 on fresh milk, margarine and fresh fruit, and slightly more on potatoes, bread and flour." Levelling was most marked in rationed foods, particularly eggs, butter, and fresh meat, on which before the war class A spent three times as much as class D. Classes A and B consumed substantially more milk and eggs than the other two. Class C with its larger families consumed more potatoes and bread. Class A's diet was improved most by "free" foods from gardens and gifts. For all households, expenditure was divided among the main foods in the following proportions:

	Percentage
Meat and fish	27
Milk, cheese, and eggs	18
Fats, sugar, and preserves	10
Fruits and vegetables	19
Cereals	18
Total	92

The average energy value of the diet in all households was 2,474 calories per person per day. The figure for class A was 2,542, for class D 2,379, and for old age pensioners' households 2,290. Calorie requirements based on British Medical Association recommendations vary between 2,250 and 4,250 for men and 2,000 and 3,000 for women.

Households with the lowest expenditure per person were those of old age pensioners, 12s.1d. ($1.69) and those with three or more children, 12s.3d. ($1.71) and 11s.3d. ($1.57). Diets of families with four or more children recorded a nutrient value of about 20 to 30% below those of childless households.

Teaching of Social Medicine.—The progress report (January, 1953) of the Social and Preventive Medicine Committee of the Royal College of Physicians reviews the progress that has been made in the teaching of social and preventive medicine in England and Wales since the publication of the committee's first report in 1943. In the provincial medical schools, which have a combined yearly intake of around 650 students, the curriculum in social medicine has been greatly expanded during the postwar years, and the former public health courses have been replaced by modernized courses in social and preventive medicine. In almost every school the number of hours devoted directly to social medicine has been doubled, and as a rule the curriculum in social medicine is spread over the three clinical years. It is estimated that in 1943 the average total number of hours allotted specifically to direct instruction in social medicine was 37 (range, 24 to 50), compared with 60 (range, 22 to 139) in 1952. "With the single exception of Oxford, there is now a separate Department of Social and Preventive Medicine in every provincial school."

Speaking generally, the organization of these departments can be divided into two types: (1) a department headed by a full-time professor who has one or more active medical officers of health on his staff, and (2) departments under the direction of a medical officer of health, a part-time professor or lecturer, who depends on full-time university lecturers for the fulfillment of teaching programs. The committee comments, "There is remarkably little difference between these alternative types. Each has its advantages, and individual preference for one or the other appears to depend on the accident of personal experience and opportunity. Altogether the programmes of the different provincial schools show an encouraging improvement, but a detailed examination suggests that in some of them there are still serious gaps in teaching practice."

The subjects covered by the social medicine curriculum are classified under two headings: 1. Organization of health services and medical care and social services (including their historical development) includes topics such as the statutory obligations of the practitioner in relation to notification and certification; administrative aspects of mental deficiency and mental disorder; the training, status, and duties of health visitors, nurses, midwives, and medical auxiliaries; maternity and child welfare services and arrangements for the care of the deprived child and the aged; and local authority services at the disposal of the general practitioner. 2. Studies of community health, including those referred to as the mass phenomena of disease, include epidemiology, which includes diseases not usually regarded as communicable; vital statistics and measures of community health, including the collection, preparation, and study of the significance of demographical data; and human genetics in relation to the etiology and prevention of disease.

Personal hygiene and environmental hygiene are also included in the undergraduate curriculum in every school, but as a rule they occupy a relatively small amount of teaching time. The importance of adequate instruction in occupational health and industrial medicine is generally recognized. Big differences exist in relation to research activities, but "there is general agreement that a programme of research is essential for sustaining the virility of a Department over a period of years." A feature of many provincial medical schools is the development of statistical departments within, or in close association with, departments of social medicine. The committee considers that "in the absence of a separate Statistical Department, the attachment of a Statistical Section to a Department of Social Medicine is usually a good working arrangement. This Department uses statistical methods more than most other departments, and its presence in the Department of Social Medicine is often the means of encouraging collaboration between clinical departments and the Department of Social Medicine in research."

The London medical schools, with their combined yearly intake of around 1,100 students, present an entirely different picture, "probably," the committee suggests, "because the schools do not have to provide post-graduate instruction in Public Health, and because they are less closely integrated with the academic life of the University." There is no separate department of social and preventive medicine in any London undergraduate school. The usual procedure is for a series of formal lectures to be delivered during one of the later clinical years by a medical officer of health. The average number of hours devoted to this purpose is 21 (range, 6 to 35). The general policy in the London schools is the integration of social aspects of sickness with clinical subjects and pathology. One London dean is quoted as saying that "social medicine cannot and should not be taught to the undergraduate student as a special subject." There is no mention of sociomedical research in any London undergraduate medical school. The committee's comments on the position in London are cautiously scathing: "It appears that generally speaking the consolidation of social medicine as a subject in the curriculum in London lags behind the best provincial arrangements. Even assuming that with the assistance of almoners and social workers the clinician is able to deal adequately with the aspects of social medicine which

have been called 'social therapeutics,' there are still big areas of social medicine which do not appear to be adequately represented in the curriculum."

Student Health Services.—The Social and Preventive Medicine Committee of the Royal College of Physicians has also issued a progress report (January, 1953) on student health services. In its past report on this subject, in 1946, the committee recommended that universities accept greater responsibility for the health of students by making arrangements for medical examinations after entry and periodically during the student's stay in the university, and for medical and nursing care of all students. In addition, it recommended that the universities should undertake inspection of students' lodgings, insure the provision of adequate meals in canteens, and consider the appointment of a medical officer for the general supervision of student health. In their current report the committee considers that, with the exception of Oxford, the general position in the universities outside London is now broadly in accordance with their recommendations as regards medical and nursing care, "but in some universities much still remains to be done in the way of inspection of lodgings and provision of other facilities relating to student health." In Oxford, certain colleges have arrangements "which in some cases amount to an organized student health service, but the University recently rejected a proposal to set up a service covering the student population as a whole."

In London, conditions vary greatly among the constituent schools and colleges. In the medical schools the position is satisfactory, as in every case students can obtain treatment and advice from members of the hospital staff. The position with regard to nonmedical students, however, is much less satisfactory on the whole than in the provinces. The most highly developed service in London is at University College. Here there is a student health association governed by a committee consisting of six staff members and six students, and financed partly by the college and partly by a compulsory student contribution of 5s. per annum. The association runs a health center with a medical, dental, and nursing staff, providing surgeries for minor illnesses and injury, ophthalmology, psychiatry, pathology, and dentistry, as well as mass radiography and voluntary periodic examination. The physician-in-charge also maintains a general practitioner service for those students wishing to register with him. Developments are planned for regular blood counts and a sick bay for cases of minor illness. Imperial College has a medical officer and nurse in daily attendance at a fully equipped consulting room. All minor sickness and injuries are dealt with, freshmen are encouraged to have a routine examination on entry, and mass radiography is available. Most of the residential colleges and college hostels have a sick bay and nurse and either a medical officer or arrangements with local physicians. All have arrangements for mass radiography. The remaining nonmedical schools and colleges, however, with a student population of around 6,000 have little in the way of facilities. "Most have access to mass radiography and some have part-time nurses, but the general attitude is either that there is no demand from the students themselves, or that there is no need for any other arrangements outside the National Health Service." Although under the National Health Service "every student should now theoretically have access to a general practitioner and full curative services, in practice his special difficulties may still not be fully met," and the committee asks that "early consideration should be given to the problem of the part to be played by the general practitioner in an organized student health service as adviser in health as well as in sickness."

The committee's view on the situation in London University are summarized as follows: "It is particularly disquieting that London should be the laggard. London probably has more students living in lodgings than all the other universities put together, and experience shows that this group is the most vulnerable of all. The Committee cannot accept the suggestion that evening college students and foreign post-graduates are adequately catered for in other ways; they may be the very ones whose need is greatest since the former are voluntarily extending the working day and the latter may not be aware of facilities which are available. In effect, with a few exceptions, interest in the preventive aspect of student health in London is confined to mass radiography, and the college authorities seem to regard this as all that is incumbent on them to do."

William Harvey Commemoration.—On April 1, the 375th anniversary of the birth of William Harvey was commemorated at Folkestone, where he was born. The mayor laid a wreath at the base of the Harvey statue. The president of the Harveain Society, who announced that the society was endowing a fund to provide an annual prize for the best essay written by a boy of the Folkestone Harvey Grammar School, expressed the hope that the commemorative ceremony would become an annual event. The vicar of Hempstead, in Essex, announced that the Harvey tomb and chapel there are now almost restored, and the Bishop of Colchester looked forward to an annual pilgrimage being made to the chapel and tomb at Hempstead. Thus ends the controversy that raged last year concerning the state of dilapidation into which the Harvey chapel and tomb had fallen and the suggestion that Harvey's remains should be removed to his native Folkestone or some other appropriate resting place, such as Canterbury Cathedral. Now that the chapel and tomb have been restored, they may well find themselves included in the post-Coronation itinerary of trans-Atlantic medical visitors this summer.

PARIS

Artificial Hibernation.—H. Laborit has deduced from observations on resting plant and animal cells that the only way for a complex organism such as man to resist a severe stress capable of overwhelming its adaptive capacities is to have its metabolic rate reduced temporarily in a controlled manner. After years of research on dogs and rats, the author has perfected a two stage method for accomplishing this result: First he uses a "lytic cocktail" to block the vegetative nervous system, thus preventing shock during and after the operation and potentiating general anesthesia by reducing basal metabolism. Then, to obtain a more complete slowing-down of tissue metabolism, he refrigerates the organism. When both methods were applied to the dog it was impossible to produce irreversible hemorrhagic shock by Wiggers' method.

Trials.—The technique used in human clinics is as follows: On the eve of the operation, the patient is given phenobarbital ("gardenal") and "phenergan" (10-[2-dimethylaminoisopropyl]-phenothiazine), a synthetic antihistaminic, orally. One hour before the intervention, the patient is taken to the operating room, where absolute calm prevails. A perfusion of 500 cc. of isotonic sodium chloride solution, containing 0.50 gm. of procaine, 50 mg. of a dibenzoparathiazine derivative ("R. P. 4560"), and half an ampul of meperidine hydrochloride ("dolosal" [a synthetic spasmolytic]), is given intravenously, slowly. This is sufficient for the stabilization of the neurovegetative system to avoid shock; the patient is then in a state of semiconsciousness. Ten to fifteen minutes after injection of this "cocktail," refrigeration is performed by means of seven or eight ice bags placed on limbs, abdomen, and thorax, specially at the level of the site of the operation. With this "lytic cocktail" there is no chill, the patient does not suffer from the cold, and the refrigeration is not accompanied with an increase of the metabolic rate, this lowered temperature not being stressful for the organism. Clinically, there is a diminution of blood pressure to 8 or 10 mm. Hg. This must be closely watched. Rectal temperature is reduced to 33 to 35 C. Then general anesthesia, with nitrous oxide and 60 to 80% oxygen, is given. Refrigeration is continued for 12 to 48 hours, according to the patient's condition. In the postoperative stage neurovegetative stabilization is obtained by intravenous or intramuscular administration of "phenergan," "R. P. 4560," and "diparcol" (10-[2-diethylaminoethyl]-phenothiazine), a synthetic drug used in the treatment of paralysis agitans. By the medicamentous blocking of temperature regulation it is possible to maintain hypothermia and to leave the patient in bed. For warming the patient, discontinuation of stabilization of

the neurovegetative system and rolling him up in blankets is sufficient. Sixty patients with hopeless conditions of advanced age have been operated on with this technique. In some cases the patients were dying from severe peritoneal infection. Their recovery shows that stress due to infection is just as amenable to this treatment as traumatic stress. These trials were performed in the wards of Professor Sénèque at the Vaugirard Hospital, Prof. Jean Gosset at the Antoine Chantin Hospital, Professor Dubau at the Val-de-Grâce Hospital, and Professor Mondor. The authors stress the spectacular nature of the results and their constancy.

Results of Later Tests.—At the Dec. 2, 1952, meeting of the National Academy of Medicine, Professor Sénèque described the therapeutic results obtained with artificial hibernation during the last two years, at the clinic of the Vaugirard Hospital. It was performed for the first time on a cachectic woman, aged 65, with bile peritonitis, in the preagonal stage, with no noticeable blood pressure or pulse and with generalized cyanosis. In spite of the patient's critical condition, she recovered and is in good health today. There have also been failures, since the use of this method has been extended beyond the field of surgery; burns, tetanus, eclampsia, disorders in premature babies, meningitis, and neuropsychiatric disorders are also amenable to it. Meanwhile, the physicopathological study of "hibernated" patients is in progress. The general refrigeration, formerly performed with ice bags, is now obtained by improved apparatuses. The hypothermic condition may last for 10 to 15 days, and rewarming must be progressive. The accessory treatment differs from the one habitually used. Oxygen therapy is useful for only a short period. Transfusion is often not needed, and parenteral hydration is less profuse; cardiotonics are also unnecessary, and vasopressors are even harmful. While infectious processes are attenuated during the hypothermal stage, antibiotics retain their value specially during the warming-up period; on the other hand, anabolistic therapy (androgens; neostigmine; vitamins B_{12}, E, and P; mineralocorticoids; and heparin in small or large doses) is necessary. The author remarked that the less vigorous the patient is the more easily he is put into a state of hibernation. Contraindications for hibernation are rare and include neither chronic tuberculosis nor heart disease; an improvement in electrocardiographic disturbances has even been noted during hypothermia. Experimental studies indicate that artificial hibernation will be useful in intracardiac surgery. The author reports the results obtained in 50 patients with an average age of 60 years: 38 patients had cancer, 37 had a history of cardiac, pulmonary, or renal disease, 16 weighed under 50 kg., and 16 had infections.

The expected mortality for these patients who were subjected to very severe operations would have been 75%, whereas 34 out of the 50 (68%) survived. Of the 16 deaths, 6 occurred from the 6th to the 48th day following operation; 5 other patients died after being rewarmed. Forty-four per cent of the deceased had cancer. The author concludes that artificial hibernation applied in desperate cases in surgery brings about a lowering of approximately three-quarters of the otherwise expected operative mortality.

Chronic Hallucinosis Following Administration of Cortisone.—Mental complications ranging from euphoria to acute severe mania provoked by cortisone are known. At the Nov. 28, 1952, meeting of the Medical Society of the Paris Hospitals, P. Léchelle, A. Thévenard, and J. Delaporte reported one case of hallucinosis, a complication previously unknown. A 73-year-old woman with asthma of a few years' duration had been given 1.0 gm. of cortisone in 10 days, with an interruption of 4 days. On the following day, the asthma disappeared, but psychic disorders set in, necessitating her admission to the hospital. She experienced progressively increasing auditory and visual hallucinations. In addition, there was a delirium of interpretation of facts: she complained that the hospital staff persecuted her. On the other hand, there was no mental confusion or loss of critical sense as regards anything not pertaining to her delirium. The results of the general examination were negative; there were no pathological, cardiovascular, or neurological signs, and the spinal fluid and electroencephalogram were normal.

After a temporary improvement, auditory hallucinations reappeared, with genital ones: a sensation of vulval touches produced by mysterious means, plunging the patient in a state of deep anxiety. Moreover, olfactory hallucinations occurred, delirium became severe, and detention in a mental hospital was necessary. The patient's daughter had been hospitalized at the age of 18 for mystical delirium, and a first cousin had a similar history. The authors insisted on the advisability of scrutinizing the familial and personal psychiatric antecedents of persons for whom therapy with cortisone and corticotropin (ACTH) is planned; they also drew attention to the medicolegal problems that may arise.

Isoniazid Therapy in Tuberculosis.—Several authors reported the results of their observations on isoniazid therapy at the last meetings of various medical societies of Paris and the provinces. Mlle. Lotte presented to the French Society for Tuberculosis an inclusive report of the collective work undertaken by the chiefs of phthisiology wards of Paris hospitals, professors, and Drs. E. Bernard, Bariety, Benda, Brocard, Brouet, Evan, J. Fouquet, R. Israel, Jacob, R. Kourilski, Lesobre, A. Meyer, and P. Bourgeois, and the physicians of the Foundation of the Students' Sanatoriums. This report includes 414 cases of pulmonary tuberculosis, in which, with the exception of rest, no other treatment was associated. The patients were treated during three months with a daily dose of 5 mg. of isoniazid per kilogram of body weight. It was often noted that severely diseased patients improved in temperature and weight, although expectoration still contained bacilli and radiograms were hardly altered. In regard to radiological and bacteriological tests, there is a great difference between recent cases and those of long standing: only the former derive a benefit from isoniazid treatment in most of the cases, and even when there are infiltrated or nodular cavitary lesions, a total cleansing of the lesions is not obtained. The authors emphasize that in recent cases of tuberculosis defervescence is obtained after one month of treatment in three patients out of four, and in long-standing ones in two out of three. An increase in weight is noted after three months in one case out of two in recent tuberculosis and in one case out of three in long-standing ones. Expectoration diminishes or disappears after two months in two patients out of three with recent cases and in one out of three in long-standing ones. Bacteriological findings become negative after three months of treatment in 75% of cases with recent tuberculosis and in 33% of those with long-standing ones. After three months of treatment there is an improvement in radiological signs in 50% of the recent cases and in 16% of the long-standing cases. The authors noted the evidence of bacteria resistant to 5 γ of isoniazid to increase at the following rate: 3% of the cases after one month of treatment, 18% after two months, and 25% after three months, which necessitates an association of antibiotics from the beginning of the treatment.

Gernez-Rieux (Lille) reported his experimental and clinical results. Isoniazid showed a remarkable action in vivo on an infection induced by tuberculous bacilli resistant or sensitive to streptomycin in guinea pigs and rabbits. Conversely to what occurred with streptomycin, isoniazid resistance was also observed in treated animals. The author observed that, in several patients, ingestion of isoniazid brought about the disappearance of streptomycin resistance of isolated strains. He found that intravenous administration of the drug in strong doses may provoke severe toxic accidents. In 100 treated cases, Véran, Lassauce, and their associates (Nantes) noted a favorable action of the drug on recent nodules and recent infiltration, cold miliary tuberculosis, and acute pneumonic tuberculosis, but there have been no results in the case of round infiltrates. Sorrel, Gérard-Marchand, and Galland (Paris) reported the results obtained by all surgeons of hospitals and sanatoriums in the first attempts at treatment of osteoarticular tuberculosis with this drug. In 115 cases studied results were as follows: very satisfactory in 9%, good in 25%, and moderate in 22%.

At a meeting of the Medical Society of the Bordeaux Hospitals, F. Piéchaud, R. Tessier, G. N. Nappee, and P. Labrousse reported one case of cerebral purpura having first appeared at the malleoli in the course of a 15 day isoniazid treatment; 5 days later, the patient died from an ictus with a

foreshadow of hemiplegia. Autopsy revealed cerebral edema, purpura, and slight eosinophilia. There had been no syndrome of bacillary or infectious crises, and the authors believe the purpura to have been provoked by isoniazid; according to them, on the appearance of the least signs of intolerance, prothrombin estimations should be made, the levels of this substance being decreased definitely after a few months of treatment.

Disorders of Absorption of Vitamin A in Patients Who Had Gastrectomies.—Hugues Gounelle, H. Teulon, and their associates have noted important disturbances in the absorption of vitamin A in patients who have had gastrectomies. In their communication to the National Academy of Medicine, they demonstrated the existence of faulty absorption in these patients by showing that the blood vitamin A level after a test dose of the vitamin did not rise to the sharp peak seen in normal subjects. These disorders appear to be very obstinate; they are still noted from 6 to 10 years after a gastrectomy. The use of a wetting agent such as Tween may improve the absorption of vitamin A. Moreover, in cancers of the stomach, a diminution of the absorption of vitamin A is already noted before the operation. The authors emphasized that these findings show the necessity of a special supply of vitamin A for such patients.

SWEDEN

Infectious Diseases in 1952.—The report of the Swedish Ministry of Health on infectious diseases reported in 1952 brings out the curious fact that many such diseases show violent fluctuations from year to year. It is also remarkable that in the two neighboring Scandinavian countries, Denmark and Norway, the latter was comparatively free from acute anterior poliomyelitis in 1952, while Denmark, in the same year, had what could well be described as a catastrophic number of cases. In Sweden in 1951 only 339 paralytic cases and 212 nonparalytic cases were reported. The corresponding figures for 1952 were 363 and 129, respectively. For the paralytic cases this means 0.5 cases per 1,000 inhabitants, i. e., a rate about one-third of the average for the more recent decades.

Most of the reports in 1952 concerned scarlatina, which has shown a marked decline since 1950, when there were 34,863 cases. In 1951 the corresponding figure was 13,661, and in 1952 there was a further reduction to 7,814. There has also been a remarkable decline in the diphtheria rate, which showed a mean of 7,237 cases a year in the period 1940-1949. The notifications in 1949 fell to 65, in 1951 to 43, and in 1952 to 30. As many as 26 of these 30 cases occurred in the same county. The number of healthy diphtheria carriers was, however, much above this figure, i. e., 148.

The number of reports in 1952 was quite low in connection with such diseases as typhoid (18 cases), paratyphoid (129 cases), dysentery (94 cases), and epidemic meningitis (111 cases). Several of these cases of meningitis, however, may have concerned acute anterior poliomyelitis without paralysis. The reports of epidemic jaundice in 1948 amounted to 11,736, whereas in 1952 they were down to 1,202, or only 1.7 per 1,000 inhabitants for the whole of Sweden and 3.9 per 1,000 for the city of Stockholm. There has also been a remarkable fall in the influenza rate in recent years. In 1951 there were 70,000 such cases, whereas in 1952 they were down to about 23,000. To judge by the reports of cases, influenza seems to have been fairly evenly distributed over the whole of Sweden in 1952.

Corticotropin and Cortisone for Bronchial Asthma.—On Nov. 28, 1952, before the Swedish Society for Internal Medicine, Drs. G. Gottfarb and B. Sundberg gave an account of their treatment of bronchial asthma with corticotropin (ACTH) and cortisone at the medical department 5 of Södersjukhuset, a large hospital in Stockholm. Their material consisted of 41 cases of allergic disease, including 32 cases of bronchial asthma treated with corticotropin alone or in combination with cortisone during 1951 and the first half of 1952. Most of the 32 patients suffered from severe asthma that had hitherto proved refractory to ordinary treatment and that belonged to the so-called intrinsic, or infection, type of asthma. In cases complicated by purulent bronchitis, antibiotics were given before or simultaneously with courses of corticotropin, which was originally given in intramuscular doses of 40 mg. four times daily. This dosage was usually sufficient to effect a remission, and when improvement occurred the dosage was reduced step by step. The duration of treatment ranged from three days to three months.

A satisfactory subjective effect was achieved in 90% of these cases, and a satisfactory objective effect in about 80%, the difference between these two figures reflecting the observation that while the patients felt much relieved, ascultation of the lungs revealed no diminution of rhonchi. Among the patients given corticotropin alone, the duration of remissions ranged from a few days to a maximum of seven weeks, a return of symptoms usually occurring after one to three weeks. The complications traceable to this treatment were few and comparatively slight. In 24 cases, treatment with corticotropin was followed by cortisone given orally, the initial dose usually being 50 mg. daily. This dose was reduced step by step to 25 mg. daily and later to 25 mg. every other day. Relapses often occurred when this final dose was reached.

Drs. Gottfarb and Sundberg came to the conclusion that the most important indication for corticotropin in cases of asthma is either severe acute status asthmaticus refractory to ordinary treatment or chronic asthma that has not proved amenable to other measures. Under these conditions the duration of hospital treatment can be appreciably reduced. But at present it would seem that older methods of treatment with such drugs as epinephrine (Adrenalin), or iodine are to be preferred in slight or moderately severe cases of asthma (see *Svenska läkartidningen,* March 6, 1953).

Research on Dental Caries.—With some 1,000 beds for patients with mental deficiencies and other pathological conditions, Vipeholm Hospital in Lund has, in only a few years, become a center for the study of the diseases of the teeth and has gained a reputation of international importance. The history of this investigation begins with a request by the Swedish government to the Swedish Ministry of Health, in cooperation with the Swedish Dentists' Institute, to study means for combating dental disease in the country. Surveys of school children have shown that the dental caries rate in childhood is very high in Sweden, with, in some instances, a mean of more than seven new outbreaks of caries per child per year. In some cases this mean has been as high as 20 to 24 attacks per child per year. After the necessary quarters had been provided for a long-term investigation of dental disease at Vipeholm Hospital, about two-thirds of its patients were selected by certain dental and medical standards to serve as test objects. Periodic examinations of these patients' teeth were carried out, and from 1945 various problems were studied with special reference to caries. In 1946 and 1947 much attention was paid to the possible connections between caries and vitamins and minerals. The administration of lime, fluorine, and bone meal to the diet failed to show that these products had the capacity to prevent caries. But no final conclusions were drawn, since the duration of these tests was comparatively short. From 1947 to 1949 many different tests were carried out with regard to the influence of carbohydrates, sugar in particular, on caries. Between 1949 and 1951 various changes were made in these tests. While some groups of patients lived on a standard diet without any carbohydrates between meals, other groups were given sugar in many different ways between meals.

Since this investigation was started, numerous preliminary reports have been issued in Swedish and English. A more comprehensive publication is due shortly on the relationship of dental caries to the consumption of sugar in various forms. The first section of this publication has already appeared in the organ of the Swedish Dental Association (*Sveriges tandläkareförbunds tidning)* for Feb. 1, 1953. Its author, Docent Bengt Gustafsson, points out that the risk of caries is greatest when sugar is given between meals in such a form that it tends to stick to the surface of the teeth in a concentration maintained for a considerable time. Thus, sugar in the form of toffee is more dangerous than sugar in chocolate.

TURKEY

Isoniazid Therapy in Tuberculous Meningitis.—In a recent Istanbul University medical school periodical Ord. Prof. Sedat Tavat, attending physician at the Admiral Bristol American Hospital, and his associates, Drs. N. Yeginsu, H. Arpacioglu, and F. Turnaoglu, published a report of a case of tuberculous meningitis that responded well to isoniazid therapy. A week prior to admission to the hospital, the patient, a girl 14 years old, had a temperature of 39 C, a severe headache, chills, nausea, and vomiting; she had been given penicillin therapy without effect. On admission to the hospital the patient had a temperature of 39.5 C, was semiconscious and agitated, had photophobia, strabismus, an enlarged right pupilla, and a stiff neck, and did not respond to stimuli. Kernig's and Brudzinski's signs were positive; Babinski's reflex was negative; dermographia was present; the pulse was full and regular at 98 beats a minute; and the blood pressure was 120/80 mm. Hg. Lumbar puncture showed a clear cerebrospinal fluid of high pressure, a Pandy test of 2+ positive reaction, albumin 80 mg. per 100 cc., glucose 50 mg. per 100 cc., chloride (NaCl) 670 mg. per 100 cc., and white blood cells 187 per cubic millimeter (74% lymphocytes, 26% polymorphonuclear neutrophils); a filmy web had developed. The test for Koch's bacilli was negative, and the red blood cell count was 4,460,000, the white blood cell count 8,200, and the sedimentation rate 8 mm. after half an hour, 26 mm. after an hour, and 50 mm. after two hours. The eyepits were normal, as were the lungs. The patient was given streptomycin therapy, a daily dose of 1 gm. intramuscularly and 0.05 gm. intraspinally for seven days. The patient's fever did not subside; photophobia, diplopia, and stiffness of the neck remained unchanged; nausea and vomiting continued; and only the headache had slightly decreased. The cerebrospinal fluid of another lumbar puncture revealed almost the same characteristics as the first; a filmy web still was present. The fluid was sent to the Istanbul Institute of Microbiology for guinea pig inoculation, and the results were normal. Streptomycin therapy was discontinued. The patient was given isoniazid therapy, 5 mg. per kilogram of body weight by mouth, three times daily after meals. On the second day the patient's general condition began to improve, the temperature returned to normal, strabismus and diplopia diminished as did nausea and vomiting, the headache was greatly relieved, and there was improvement in appetite. On the 10th day the patient was afebrile, diplopia had further diminished, the stiffness of the neck had disappeared, and the patient had gained weight, 500 gm. Lumbar puncture fluid had not much changed. The Pandy test gave a 1+ positive reaction, albumin was 70 mg. per 100 cc., glucose was 40 mg. per 100 cc., white cell count was 142 per cubic millimeter, (73% lymphocytes, and 27% polymorphonuclear neutrophils); a filmy web was present. There had been no signs of intolerance. The therapy was continued for 40 days. At this time the patient's temperature continued around 37 C; nausea, vomiting, and headache completely disappeared, and photophobia left, but a slight diplopia remained. Lumbar puncture fluid revealed a negative Pandy test, albumin of 60 per 100 cc., and a white blood cell count of 160 (61% lymphocytes, 39% polymorphonuclear neutrophils); there was no web. The patient was told to continue the therapy for another month. The authors concluded that, though the administration of isoniazid concerned only one patient with tuberculous meningitis, the results obtained justify the report.

Cutireaction to Ascarides.—In rural communities of Turkey helminthiasis is present in 80% of the population. Prof. Ziya Oktem, of Istanbul University department of microbiology and infectious diseases, when chief of the Black Sea coast Necator campaign, found ascarides in 55% of the inhabitants of this region. Dr. Kadri Onat found ascarides in 38% of the inmates of the Istanbul Asylum for the Aged Poor. Dr. Ragip Üner found ascarides in all the pupils of a primary school in Newshehir, a town in central Anatolia.

In the *Turkish Bulletin of Hygiene and Experimental Biology* (vol. 12, no. 2, 1952) Prof. Nusret Karasu, of the department of phthisiology of Ankara University, and his associate, Dr. Ragip Üner, have published their results with experiments of ascarides extract. Ascarides were exposed to a high pressure flow of running water, hacked into minute pieces, and crushed with sterile sand and physiological serum in a sterile mortar. The solution obtained was sterilized in formalin and put into ampules, which were kept in a refrigerator. From 80 ascarides 20 to 30 cc. of extract was obtained, and from this the desired solution was taken. Separate extracts were prepared from female ascarides and their eggs and from male ascarides. As far as the tests were concerned, no difference was observed. The first administration evoked a histamin-like shock in the patient. A further diluted solution did not have that effect. Currently a tenth of a 1:8,000 solution is accepted as a unit. A subcutaneous injection of 1 unit produces a 10 mm. erythema, in the center of which an edema develops; it disappears after 48 hours. For control a subcutaneous injection of a salt solution was given in the other arm. The cutireaction test was administered to 941 persons 1 to 60 years of age. Seventy-five per cent of those who expelled ascarides or whose feces revealed their eggs had positive reactions; 18% who did not expel ascarides and whose feces did not reveal eggs had positive reactions. When other parasites were also present the tests were 100% positive. In hospital patients with tuberculosis the reactions were 89% positive, in patients with ulcers 70%, and in patients with lymphogranulomatosis, asthma, and cirrhosis positive reactions were negligible. In children up to 5 years old positive reactions were 69%, in patients from 5 to 20 years old 60%, and in those from 20 to 30 years 65%.

Smallpox Campaign and Vaccination.—In the *Turkish Bulletin of Hygiene and Experimental Biology* (vol. 12, no. 2, 1952) Dr. Niyazi Musa Erzin, director of the Ankara Refik Saydam Central Institute of Hygiene, writes on smallpox vaccine and vaccination during the last 15 years in Turkey. The first smallpox vaccination regulation was passed 80 years ago; its strict enforcement began 12 years later. In accordance with the more recent public health law (1929) all children born in Turkey must be vaccinated by the end of the first four months. Revaccination is required every five years until the age of 30, on entering school or civil or military service, and on obtaining a marriage certificate or passport. As soon as a case of smallpox is reported the whole community is revaccinated and in the event of an epidemic the population of the whole province or country. Vaccination is free everywhere and administered by vaccinologists, health officers, at municipal and other hospitals, at dispensaries, and at hygiene institutes. Smallpox vaccination in rural communities, where 82% of Turkey's population live, presents a special problem. There is a lack of facilities for cold storage, but vaccine kept under proper storage conditions has proved its potency after 15 years. Until 1934 smallpox and bacterial vaccines and serums were prepared in the Istanbul Bacteriological Laboratory. They are now prepared for distribution to civilian and military departments by the Ankara Refik Saydam Central Institute of Hygiene exclusively.

To strengthen the virus virulence it is given, after a passage through two calves, an additional passage through a donkey less than a year old. The results have been very satisfactory. Postvaccinal encephalitis has not been observed in Turkey. The donkey transfer, a method probably not used anywhere else, perhaps accounts for it. From 1939 to 1944 the average yearly production of smallpox lymph was 42 kg., of which 15 million doses were distributed. After 1950 there was less need for it. Currently the vaccinology department uses 200 calves (one calf yielding 200 gm. of lymph) and 20 donkeys per year.

Smallpox has, in recent years, come almost completely under control in Turkey. It still occurs sporadically in the Eastern and Southern provinces. Lack of personnel in these sparsely populated regions make absolute control difficult. Also the exchange of crops and other commodities of persons living near the borders and who are often related to those living in Iran, Iraq, and Syria, where smallpox is sporadic, is an important contributing factor to the spread of smallpox in these Turkish territories.

CORRESPONDENCE

INVITATION TO VISIT NEW YORK CITY HOSPITALS

To the Editor:—As physicians and hospital administrators we are looking forward to the annual meeting of the American Medical Association to be held in New York City from June 1 to 5 of this year. Many of the visiting doctors may be interested in the tremendous new construction program of this department. Much of the new hospital construction is still in progress and probably has limited interest to your members, apart from those engaged in hospital design and administration; however, a number of the new special hospitals may be of interest to visitors to our city. I would like to extend to members of the Association an invitation to visit such hospitals of this department as they may desire. I would call attention to those interested in the treatment of cancer to the two new cancer hospitals: the Francis Delafield Hospital, Fort Washington Avenue and 163d Street in Manhattan, which is affiliated with the Columbia-Presbyterian Medical Center, and the James Ewing Hospital, 1250 First Avenue in Manhattan, affiliated with the Memorial Hospital, which embody the most modern facilities for the treatment and study of cancer.

I extend an invitation to visit the new 1,920-bed Bird S. Coler Hospital and the Goldwater Memorial Hospital on Welfare Island, which are doing outstanding research in the treatment and rehabilitation of the chronically ill. For those interested in the treatment of tuberculosis, the new Tuberculosis Hospital of the Kings County Hospital Center in Brooklyn represents the most advanced type of special facility of this kind. Among the hospitals under construction I would call attention in particular to the Bronx Municipal Hospital Center, comprising the Nathan B. VanEtten Hospital for tuberculosis, with a capacity of 500 beds, and the Abraham Jacobi Hospital, a general hospital of 898 beds, located at Pelham Parkway South and Eastchester Road in the Bronx.

In mid-Manhattan, the New Metropolitan Hospital, a general hospital of 1,050-bed capacity, is nearing completion. This hospital is located between 97th and 99th streets, First and Second avenues. Also in Manhattan, the Bellevue nurses' residence and school, located in the Bellevue Hospital Center, may be of interest to those concerned with schools of nursing. This structure provides modern educational and living facilities for 900 nursing students. In the borough of Queens, the New City Hospital, a general hospital of 961-bed capacity, at Broadway and Baxter Avenue in the Elmhurst district, is in an early stage of construction. In addition, an extensive rehabilitation and modernization program is in progress in practically all remaining hospitals of this department. The entire construction program for new hospitals and modernization comprises a 192 million dollar project, which has been in progress for the past five years.

All members of the Association attending the Convention in New York City are invited to visit the hospitals in which they are interested. It is desirable for such visits to be arranged for groups to the fullest extent possible. Direct communication may be had by telephone with the superintendents of the hospitals in order to assure that visitors will be received and conducted through all or such parts of the hospital as they may be interested in.

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JOURNALS FOR OTHER COUNTRIES

To the Editor:—The returns from my letter published in The Journal (**150:**814 [Oct. 25] 1952) offering to send medical periodicals to foreign physicians have been gratifying but rather surprising. I had expected the bulk of the requests to come from Great Britain and the Continent, but I received only one from England, one from France, and one from Germany. That the other requests came from many other cities around the world certainly speaks well for the distribution of The Journal. I had several requests from foreign physicians residing in the United States, but, since the postmarks on their letters seemed to indicate that they would have access to medical libraries, I referred them to those facilities. There were two requests from institutions, one of which was the Severance Hospital and School in Seoul, Korea; however, a letter in The Journal (**151:**319 [Jan. 24] 1952) should be sufficient to publicize this need. The other was from the American Medical Society of Vienna and was written by Arthur M. Kline, M.D. The society needs medical publications of any kind to replace those missing from its library. It will take the help of a group or institution to handle this request. Periodicals should be sent to the American Medical Society of Vienna, Vienna Academy of Medicine, Alberstrasse 4, Vienna IX, Austria. Among the other requests was one from four members of the Lutheran Medical Mission with headquarters located in New York City. Their letter said, "A supply of medical literature would be most welcome to people who work in isolated areas removed from all the usual professional contacts and sources of information." The names and addresses of these physicians are Wolfgang F. Bulle, M.D., Bethesda Lutheran Hospital, Ambur, North Arcot District, India; Eric Hoopman, M.D., Lutheran Mission Hospital, Jaguam, Madang T, New Guinea; Elena Trejo Carstens, M.D., Antigua Hospital, Antigua, Guatemala; and Valentine Donisch, M.D., Lutheran Hospital, Eket, Nigeria, West Africa.

A London physician, a research assistant, Postgraduate School Hammersmith Hospital, states that he is now conducting research on the adrenal cortex and sodium and potassium metabolism. A professor in the department of medicine of the University of Lille, France, would like to have the *Archives of Internal Medicine* or a similar magazine. A Bulgarian states that his need is great and that he wishes any kind of medical literature. A letter from Greece requests copies of the *Archives of Internal Medicine*. Also, this physician will pass the publications on to his medical association. Another, from Salonika, Greece, expresses an interest in general practice and laboratory work and requests literature in those fields.

An Argentinian physician interested in internal medicine and clinical laboratory procedures suggests exchanging Argentinian periodicals for journals published in the United States. Another request came from Verria, Greece. The writer wishes magazines and articles relating to internal medicine and, in particular, copies of the *Archives of Internal Medicine*. A young physician in Wurzburg, Germany, would like to exchange German publications for periodicals published in the United States. A young man in Bogotá, Colombia, is an assistant surgeon at the Institute of Radium in Bogotá, an 80-bed hospital devoted solely to the treatment of malignant disease, and would like publications of any kind in his line. He would also be glad to correspond with anyone interested in similar studies. I will be glad to send to any physician in the United States the name and address of any of the physicians who have written to me.

It has been my idea from the first that this plan should incorporate physician-to-physician correspondence. The process is not difficult or expensive. The cost is only a few cents to send a pound of literature almost anywhere in the world. The parcel should not be wrapped but tightly rolled; this makes postal examination easy. The parcel should be tied three or four times with strong twine, and the address of both the sender and the receiver should be clearly marked on the outside. The weight limit of each parcel is 6 lb. 9 oz. I am sure that all of us believe that the United States needs as many friends as we can accumulate, and, in my opinion, there is no better way than through mutual interest and a sincere belief in the humanitarian objects of our profession.

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CARCINOMA IN SITU

To the Editor:—The recent article by Jacob Hoffman, David M. Farell, and George A. Hahn (Review of 4,152 Biopsies of the Cervix with Relation to Carcinoma in Situ, *J. A. M. A.* **151:**535 [Feb. 14] 1953) should be of great importance to obstetricians and gynecologists. In spite of the widespread interest in the condition, I have for some time been convinced by experience at Harper Hospital that the actual incidence of carcinoma in situ of the uterine cervix must be extremely low. At this hospital, during the five years 1948-1952, examinations were made of cervical tissue from 4,490 patients. The specimens came not only from biopsies but also from cervical tissue obtained by panhysterectomy and operations on the cervix. Carcinoma was diagnosed in 206, or 4.6% of all 4,490 patients. Among these were several apparent examples of carcinoma in situ, but in all instances further search revealed evidence of invasion.

I am aware of the differences of opinion as to what factors constitute the criteria for determination of true carcinoma or of invasion. I have seen a large proportion of the microscopic sections from these 4,490 cases, and I am convinced that a majority of the experts in gynecological pathology would essentially be in agreement with our pathologists. It is perhaps true that a more intensive study of the operative specimens used would have yielded a few cases, but possible criticism regarding the biopsies, which totaled more than one-half of all specimens examined, would be much less valid because the small bits of tissue were used *in toto*.

In agreement with the authors named, I do not intend to deny the existence of in situ or noninvasive carcinoma. Authentic examples are undeniable, and their value in the investigation of the cancer problem is obvious. Clinically, however, the condition is probably very rare; in fact, experience at Harper Hospital suggests that such a diagnosis should be viewed with distrust until careful search has ruled out true invasion in other parts of the growth and of the cervix itself. It is conceivable that neglect of this precaution might explain an occasional instance of metastasis from a supposedly noninvasive carcinoma. Moreover, failure to recognize the full extent of the disease might well lead to insufficient treatment and death.

If space had permitted, it would have been interesting if the authors had made more extensive comment concerning the very common error of mistaking benign alterations of the cervical epithelium, such as those associated with pregnancy, inflammation, and procidentia, for intraepithelial carcinoma.

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PULMONARY EMBOLISM BY AMNIOTIC FLUID

To the Editor:—In THE JOURNAL, Nov. 1, page 943, appeared an editorial entitled "Pulmonary Embolism by Amniotic Fluid." The syndrome, the lethal aspects, and certain of the causative factors were discussed. In accordance with the conclusions of Steiner and Lushbaugh, who first described the clinical and morphological aspects of the syndrome, death was ascribed to anaphylactic reaction and to the toxicity of the amniotic fluid. The editorial was careful to explain, however, that the etiology of the condition and the cause of death had not been definitely established. Finally, reference was made to the often-held opinion that the diagnosis of amniotic fluid embolism is questionable, short of autopsy evidence.

We believe, in the light of new data, that it is distinctly possible that varying degrees of "amniotic fluid embolism" may occur and that early recognition and appropriate treatment may lead to recovery in a certain number of instances. This is to imply that factors other than those mentioned in the editorial may be concerned in the etiology and the sequence of clinical events in patients who experience amniotic fluid embolism. A review of the fatal cases of amniotic fluid embolism reveals two factors that we believe are of significance. The first is that some patients with amniotic fluid embolism have an associated postpartum hemorrhage. Second, in the autopsy findings it is universally stated that the blood is entirely liquid, and the comment is made that there is no evidence of postmortem clotting. With these findings in mind and the belief that there were other obstetric conditions in which the cause for uncontrolled bleeding could not be ascertained, it occurred to us that amniotic fluid might have an effect on blood coagulation.

In THE JOURNAL, Nov. 19, 1949, page 848, an editorial called attention to the result of these investigations (Weiner, Reid, and Roby: The Hemostatic Activity of Amniotic Fluid, *Science* **110:**190, 1949), which demonstrated that amniotic fluid contained a thromboplastin-like material. As these observations might apply to amniotic fluid embolism, it was suggested in a subsequent publication (Weiner and Reid: Pathogenesis of Amniotic-Fluid Embolism, *New England J. Med.* **243:**597, 1950) that in the event the patient survived the first effects of the embolism a failure of the clotting mechanism might eventually develop from a fibrinogenopenia with resultant postpartum hemorrhage and death. The concept that amniotic fluid embolism is in essence a defibrinating disease was proposed. The clinical course in certain of the fatal cases of this condition reported in the literature support this concept. Recently, an afibrinogenemic state has been demonstrated in a fatal case (Ratnoff and Vosburgh: Observations on the Clotting Defect in Amniotic Fluid Embolism, *New Eng. J. Med.* **247:**970, 1952).

A paper by us [see this issue of THE JOURNAL (page 227)] contains the case history of a patient whose clinical course during delivery and the early hours of the puerperium can hardly be explained on the basis of any obstetric entity other than the occurrence of an amniotic fluid embolism. We believe that a failure of the coagulation mechanism in this patient favors strongly the postulate proposed above. If this be true, it follows that in any obstetric situation in which the venous sinusoids are open escape of amniotic fluid from the uterus may occur, with resultant postpartum hemorrhage from afibrinogenemia. The latter might be found in hemorrhage associated with uterine atony and, as the editorial stated, cases of uterine rupture and placenta previa. Whether a defect in the clotting mechanism initiated by the escape of amniotic fluid from the uterus hinders recovery on occasion in such patients will have to be determined by future observation.

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COUNCIL ON MEDICAL SERVICE

This is the tenth in a series of studies made by the Committee on Indigent Care of the Council on Medical Service concerning local plans for medical care of the indigent. A general introduction to the series appeared in the May 10, 1952, issue of THE JOURNAL, *pages 188-191. The ninth study (Rhode Island) appeared in the April 18, 1953, issue, pages 1432-1434.*

MEDICAL CARE FOR THE INDIGENT IN RICHMOND, VA.

This is a study of medical assistance benefits made available to the indigent and medically indigent of Richmond, Va. Previous studies in this series have reported on county-wide programs; however, Virginia's geographical division leaves the larger cities distinct from county boundaries. Richmond, the capital of Virginia, is one of these independent cities; the current population totals 235,300. The city's historic tobacco enterprises and numerous younger industries have provided a remarkably stable employment situation throughout the past several decades; accordingly, during this time, the local welfare case loads have had only a minimal seasonal variation.

ELIGIBLE POPULATION

Requirements for general and public assistance are established by the Virginia state legislature and the Federal Security Administration; the welfare department certifies assistance applicants in accordance with these standards and all certified indigents are automatically eligible for all benefits provided by the health department's medical assistance program. However, welfare case loads do not necessarily include all persons eligible for the individual medical services provided; certain agencies integral to the total program independently establish requirements and screen noncertified medically indigent persons who apply for services provided by those agencies. The data in table 1 represent only those persons eligible for all phases of the medical assistance program during June, 1952: the total welfare case load represents 2% of the city's population.

TABLE 1.—*Number of Richmond Assistance Clients, June, 1952*

General Assistance		316
Service Cases *		597
Public Assistance		3,253
Old Age Assistance	1,513	
Aid to Dependent Children	1,103	
Aid to the Blind	138	
Aid to the Disabled	497	
Foster Home Care for Juvenile Court Wards		492
Total		4,658

* Temporarily certified for general assistance, subject to additional review.

ADMINISTRATION

Prior to 1941, the Richmond Department of Public Welfare bore the entire community responsibility for aid to the needy. In that year, however, the Department of Public Health was founded and, in addition to other duties, given the responsibility for provision of medical care to the city's indigent, although the welfare department continued to administer the nonmedical assistance program.

Between 1941 and 1949, the medical aid program was subjected to intense scrutiny and criticism by the Department of Public Health, the administrators of the Medical College of Virginia, and the directors of the Commonwealth Fund of New York. Through the cooperation of these three agencies, the current medical aid program was evolved. The objective of the program was dual: the provision of adequate and coordinated medical services to the indigent and medically indigent and the establishment of a teaching program whereby students of the Medical College of Virginia, in Richmond, might be familiarized with both socioeconomic and technical aspects involved in the practice of medicine.

The program is supervised and coordinated by the Medical Aid Bureau of the health department; however, the final authority on medical aspects of the program is vested in a part-time "clinical director" and two part-time consultants from the college's department of medicine. Since several professional groups are involved in the instrumentation of the program, a central record system is maintained in an attempt to achieve some degree of continuity in medical services. Although the Richmond Academy of Medicine has officially endorsed the program as an experiment, the society has played no active part in either its planning or its administration.

SERVICES AVAILABLE

The Medical College of Virginia is the hub about which the entire medical assistance program revolves. Here, using the clinics and emergency rooms of the hospitals affiliated with the college, general practice, emergency, and specialized care are made available to Richmond's indigent and medically indigent. Private physicians do not participate in the program, except under the college's auspices and direction.

The newly certified welfare client is given a card establishing his eligibility for all services provided by the program. Upon his initial visit to the clinics, the client presents this card to the clinic admitting department, which refers him to the admitting clinic for treatment or for referral to the specialty clinics or the hospital admitting staff. For treatment of clinic applicants who are not certified welfare clients, however, a careful screening by the clinic admitting department is required.

Admitting clinic hours are between 9 a. m. and noon and between 2 and 4 p. m., five days per week; general specialty clinics are conducted week day mornings, while subspecialty clinics are held week day afternoons. Both admitting and specialty clinics are housed in the Medical College of Virginia Hospital; their services are available to all assistance clients. At any time during the day or night, certified welfare clients requiring immediate medical attention may be admitted to the emergency rooms at the college hospitals. The services of the emergency rooms are available to everyone in the city.

A 24 hour switchboard service at the college hospital receives requests for home care, which is provided for those on assistance rolls without prior authorization. Requests from noncertified indigent and medically indigent clients are screened by the switchboard operators before physicians or medical students are dispatched to their homes. Special attention is given to home care by the clinical director of the program. Through his intimate contact with the program as a whole, and through the utilization of comprehensive case records maintained by the home care offices, he insures that patients requiring home therapy are carefully attended by both students and instructors.

Until this year, physicians and students participating in home care and clinic phases of the program solicited the services of the Instructing Visiting Nurses Association (IVNA) to provide bedside nursing care, with some supplementation of these services by health department nurses. On Jan. 1, 1953, the two nursing services were combined as the Community Nursing Service, with all nurses available for either educational or nursing functions. In certain instances, the program also authorizes the use of housekeeping aides.

Upon the recommendation of the clinics, emergency rooms or home service welfare clients are hospitalized at one of the participating hospitals: the college hospitals, Sheltering Arms Hospital, and Richmond Community Hospital. Convalescent care is provided to the indigent at the Richmond City Home. Certified welfare clients are admitted to these institutions with-

out special authorization; however, noncertified indigent and medically indigent petitioners are routinely subjected to a careful interrogation and means test by the hospital admitting staff prior to their admission. The staff tentatively suggests a full or part payment schedule such that emergency cases may receive prompt attention. Each patient is subsequently referred to the Medical Aid Bureau of the health department. The information obtained by the admitting staff is reviewed and, in many instances, verified by home calls before actual subsidization is granted.

Pharmaceuticals are dispensed to the indigent either at the clinics or by the hospital pharmacy. Though all drugs are available, the administrators of the program recommend the employment of the less expensive preparations wherever feasible. Special appliances are rented for the indigent from sick-room loan chests maintained by voluntary community organizations. Ambulance services are also provided, using conveyances owned and operated by the health department.

PROVIDERS OF SERVICES

There are currently approximately 600 physicians in active practice in Richmond. Of these, 160 qualified specialists contribute one-half day per week to the admitting or specialty clinics. In addition, four general practitioners are salaried by the medical school to supervise the provision of medical services in the hospital emergency rooms. Thus, including the program's clinical director and the medical consultants, about 170 of Richmond's licensed physicians are concerned directly or indirectly with the organized medical assistance program. Of these, only the physicians who comprise the medical school's teaching staff, with a few exceptions, are authorized to treat inpatients at the college hospitals.

TABLE 2.—*Bed Capacities of Richmond Hospitals Participating in Indigent Medical Care Program*

Medical College of Virginia Hospitals *..... (College hospital, St. Philip Hospital)	789
Sheltering Arms Hospital.....	83
Richmond Community Hospital.....	32

* Services are also available for the medically indigent on a part payment basis.

Integral to the provision of both outpatient and inpatient services are the interns and residents at the college hospitals and the 100 senior students of the medical school. These fourth year students are divided into eight groups, which are so rotated that each student is assigned eight weeks to the medical service, eight to surgery, four to obstetrics, four to pediatrics, and four to neuropsychiatry. An additional four weeks are set aside as an elective period.

At all times during the school year, a minimum of 24 students, i. e., two groups of 12 each, are assigned to the medical service. Sixteen of these assist in the medical clinics and eight are assigned to home care. The students are so rotated that each gives one-third of his eight weeks on the medical service to the latter program. Thus, each senior medical student at the college spends some 18 to 20 days providing home care.

Requests for home care services are answered by a pair of medical students in health department automobiles equipped with radio telephones. The findings of the students and their treatment of cases are reviewed daily by one of two second year medical or pediatric residents, by the clinical director, or by one of the medical consultants. The reviewing physician may return with the students to see the patient or may dispose of the case by referral to the clinics, the emergency rooms, or the hospital admitting staff. A secretarial staff is employed specifically to maintain home care case records and to insure periodic visits by students or physicians to the homes of chronically ill welfare clients.

In table 2 are given the bed capacities of those hospitals whose inpatient services are available to Richmond's welfare clients. In general, the diagnostic and therapeutic facilities of the college hospitals are more comprehensive than those of the other hospitals, and individual cases are assigned to and transferred between the institutions accordingly.

To insure efficient utilization of available facilities and thus obviate unnecessary expenditures for inhospital services, the Richmond Department of Public Health employs a hospital coordinator who personally follows the institutional care of all welfare clientele. The coordinator, a licensed physician and a member of the college's department of medicine, reviews each case at least once weekly and has final authority as to the duration of hospitalization required by the patient and as to the selection of the institution wherein adequate medical services may be most economically provided. The role of hospital coordinator is, of course, of singular importance in a teaching institution, where there might be a tendency to hold unusual cases for observation longer than is absolutely necessary for adequate hospital treatment.

The Richmond City Home provides domiciliary care as well as convalescent care to the certified indigent. Of its 310 beds, only 225 are normally occupied by convalescent, terminal, or chronic cases. The home is staffed by 6 registered nurses, 31 practical nurses, and 3 externs. A salaried attending physician makes routine and emergency calls on those occupants of the city home in need of his services.

PAYMENT FOR SERVICES

The great majority of the medical benefits provided to the indigent and medically indigent of Richmond are tendered through the Medical College of Virginia and its affiliated hospitals. In return for these services, the Richmond Department of Public Health has contracted to reimburse the college on the basis of its computed per patient operating costs. Additional contracts have been negotiated between the health department and the other agencies incident to the program.

During the fiscal year 1952, the department was billed at a rate of $0.50 for each clinic visit, admitting or specialty, of certified welfare clients; the cost of emergency room care was $3.00 per patient treated. The noncertified medically indigent were asked to make partial or full payments for clinic care; the remainder of these costs were absorbed by the medical school. For inpatient care given welfare clients at the college hospitals, the college was reimbursed at an inclusive rate of $13.50 per patient day. In addition, the health department paid a portion of the costs of inpatient services to the retroactively certified medically indigent, determined for each individual case by the hospital admitting staff and the Medical Aid Bureau. The per diem rate negotiated between the department and Sheltering Arms and Richmond Community Hospitals was $7.00.

To avoid confusion regarding responsibility for care of welfare clients at the city home, the Department of Public Health and the Department of Public Welfare have arbitrarily agreed that services provided during the first two months at the home be considered convalescent care and service provided over any period in excess of two months is considered domiciliary care. The welfare department, charged with the administration of the home, bills the health department for services classified as convalescent on the basis of costs, $2.63 per bed per day during the fiscal year 1952.

The home care phase of the program is financed jointly by the health department and the medical school. The health department pays the salaries of the clinical director, the medical consultants, and the office and administrative assistant; it also defrays the costs of pharmaceuticals and of the four automobiles utilized by participating physicians and students. For home nursing services, the health department makes monthly payment at a contract rate of approximately $2.60 for each visit requested by a home care physician. The nursing service has been guaranteed a minimum of $10,000 per year for its services. The health department is also billed monthly for drugs dispensed to welfare clients by the college hospital pharmacy. Prosthetic appliances are rented from the sick room

loan chest at reduced rates. The college pays for the residents, furnishes the program's operating space, defrays the cost of one automobile, and pays part of the cost of the social service and clerical salaries. All laboratory work on home service specimens is done without cost in hospital and clinic laboratories.

COSTS AND FINANCIAL SUPPORT

During the fiscal year 1952, the health department's expenditures for medical care to assistance clients totalled $339,000, with an additional $7,000 expended in partial payment of hospital and nursing services for noncertified medically indigent clients. Of this $346,000, the state provided $60,000 toward the cost of inpatient services at the college hospital and the Commonwealth Fund provided $19,000 as a grant to the home care program. Remaining costs were met by local funds. Table 3 gives the approximate costs for medical services to assistance clients; the cost of home care for noncertified patients has not been subtracted, since the health department's share of this cost is relatively independent of the number of patients treated.

Though no payment is made by the city for services rendered the medically indigent in emergency rooms and clinics, about 50% of the home and hospital services are furnished to these clients. Cost figures given in table 3 include these services, as well as those to certified assistance clients.

TABLE 3.—*Cost of Medical Services to Richmond Welfare Clients, Fiscal Year 1952*

	Cost		Percentage of Cost of Total Program
Clinic Care	$ 37,500	....	11%
Home Care	44,000 *	....	13%
Institutional Care	225,000	....	66%
Hospital $203,000			
Convalescent 22,000			
Pharmaceuticals	2,500	....	1%
Auxiliary Care	16,000	....	5%
Nursing Service $ 11,500			
Housekeepers 3,500			
Appliance rental 1,000			
Administration (except home care)	14,000	....	4%
Total	$339,000		100%

* This figure represents the entire health department cost for home care, including administrative and pharmaceutical costs.

SUMMARY

The Richmond Department of Public Health provides to the city's certified welfare clients a broad range of medical services. Although the manner in which these benefits are supplied is essentially distinct from private medical care, the personnel and facilities made available may well be superior to those obtainable by many nonindigent residents of the city. The admitting and specialty clinics at the college hospital are staffed by physicians who are among Richmond's most highly trained medical personnel. Furthermore, the contiguity of the clinics provides for rapid referral of the indigent patient to the physician best qualified to treat his particular ailment.

The home care phase of the medical aid program is designed to instruct medical students as well as to provide care for the indigent. Thus the quality of medical care is under constant criticism and inspection; however, the home care program is in recurrent danger of becoming understaffed during the summer months, an obvious disadvantage in the system. At the hospitals associated with the medical school, all available diagnostic and therapeutic facilities are placed at the welfare client's disposal with a minimal regard for expense. The health department, however, avoids abuse of the institutional phase of the program through its hospital coordinator. The relatively small total costs for hospital care bespeak the efficacy of the coordinator's role in the program.

The Richmond welfare client cannot, of course, maintain the intimate physician-to-patient relationship as can the private patient. The medical aid program does not offer what might in any way be construed as free choice of physician. Continuity of medical services is achieved through an elaborate and orderly system of case records; however, no single student or physician is assigned individual patients or families for an extended period of time.

Medical indigency is diversely defined by the various agencies participating in the program. Thus the noncertified borderline indigent is entitled to limited medical services and is subjected to repeated screening and means-testing if more than one type of medical service is required. It is estimated that about 50% of the home and hospital services furnished are for medically indigent patients.

The Richmond medical aid program is currently in the embryonic stage of its development. Today, its scope of services and its objectives are worthy of the highest praise. Through the sincere interest and intelligent cooperation of its participating agencies and technical personnel, it is reasonable to assume that the program's minor defects are even now being eliminated.

MISCELLANY

STUDY OF THE HEALTH OF CHROMATE WORKERS

A recent publication of the U. S. Public Health Service summarizes a five year clinical and environmental study of the chromate-producing industry in the United States. The industry had requested the Public Health Service to make this investigation to determine the relation of exposure of employees to the incidence of bronchogenic cancer and to recommend controls. Data were obtained from morbidity and mortality experience of members of sick benefit associations for the 9 year period 1940-1948 and from medical examinations of 897 workers.

The annual number of cases of sickness and nonindustrial injuries per 1,000 white males was 116.3 for chromate workers and 108.4 for other industrial workers. For all causes except cancer, the rates for the two groups do not differ widely, but cancer, with a rate of 7.1 compared with 0.7, stands out as markedly in excess for chromate workers. The morbidity studies also showed that the frequency of sickness among chromate workers has decreased during the past five years, the greatest decline being among respiratory diseases.

The medical examinations revealed perforation of the nasal septum in 509, or 56.7% of the chromate workers. Colored workers had a greater prevalence of nasal perforations than white workers and their perforation also developed in a shorter period of exposure. The most common eye finding was congestion of the conjunctiva, which was found in 44.7% of the white and 22.5% of the colored chromate workers, compared with 35.1 and 17.3% for white and colored nonchromate workers, respectively. Severely red throats were found in 9.8% of white and 12.8% of colored chromate workers, but in only 1.4% of white and 7.4% of colored nonchromate workers. Exposure to chrome compounds apparently did not affect the dental caries rate nor the prevalence of hypertension or other cardiovascular diseases.

Of the 897 chromate workers examined, 10 were considered as having bronchogenic carcinoma. A survey of a comparison group showed 20.8 lung cancer cases per 100,000, compared to 1,115 for chromate workers. Examination of the rates by age showed the greatest excess for chromate workers 40 to 49 years of age.

In addition to these findings this report, which is entitled "Health of Workers in Chromate Producing Industry," presents a review of the literature, a detailed description of the processes employed in the chromate industry, and a discussion of findings of environmental studies undertaken as part of the survey.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Drugs: Liability of Manufacturing Chemist for Injury Following Use on Physician's Prescription.—The plaintiff sued for damages for injuries sustained by his wife following her ingestion of a medicament manufactured by the defendant chemical company. From a judgment in favor of the defendant, the plaintiff appealed to the court of appeals of Georgia, division 1.

The defendant chemical company manufactured, among other things, a medicament known as "cafergone," composed of 1 mg. of ergotamine tartrate and 100 mg. of caffeine. This medicine was marketed, in pill form, in sealed bottles, sold to pharmacists, and labeled, "To be dispensed only by or on the prescription of a physician"; the directions contained the precaution that the medicine should be taken under medical supervision. The directions also warned that dosages exceeding four tablets may produce unfavorable reactions. The plaintiff's wife suffered from recurrent attacks of migraine headache that had persisted for some years, and she had been under the care of various physicians throughout the country for the relief of such condition. Some time prior to the filing of this suit, the plaintiff's wife was prescribed "cafergone" by her physician, and the prescription was filled by a local druggist who testified that he took the tablets from the sealed bottle in which they had been delivered and put them in a "prescription box" with a proper label attached. The dosage recommended by the defendant was two tablets at the onset of an attack of migraine, to be followed by one tablet each hour until the headache was relieved or until a total of six tablets had been taken, and in no event should more than eight tablets be taken in a 24 hour period. The plaintiff's wife proceeded to take "cafergone" tablets as prescribed and after five had been taken in about four hours, in accordance with the defendant's recommended dosage, she sustained a sudden intense shock resulting in partial loss of consciousness and partial loss of vision. The attack was attended with nausea, shock, pain, and blindness; this condition persisted for several days and required hospitalization and medical care. Both ergotamine tartrate and caffeine are powerful drugs, inherently dangerous for human consumption. The combination of the two, it was alleged, greatly increased the power and efficiency of each, especially of ergotamine, on the human system to the extent that the tablets, in the dosage intended and prescribed by the defendant, were capable of producing dire effects and consequences.

Recovery in the present case, said the court of appeals, was sought on the theory that the defendant, without disclosing its dangerous properties, was negligent in putting on the market the poisonous medication known as "cafergone," some of which was taken by the wife of the plaintiff with damaging results. It was not contended or shown by the evidence that the product was adulterated or otherwise than what it was supposed to be, a combination of ergotamine tartrate and caffeine. The defendant recommended and prescribed a dosage of its product, "cafergone," that was two tablets initial dose, to be followed by a tablet each hour until the headache was relieved or until a total of six tablets was taken. The defendant placed "cafergone" on the market to be dispensed and used only when prescribed by a physician. It made no representation directly to a consumer or to a physician in any particular case. It did not recommend a dosage of six tablets but merely suggested it to the physician. Certainly no liability attaches merely because injury followed the ingestion of the medicine under such circumstances of marketing, said the court of appeals. The evidence showed that it was good medical practice to prescribe "cafergone" within the limitations recommended by the defendant, notwithstanding the fact that bad results sometimes might follow in cases in which persons had individual sensitivity to drugs not discoverable in the exercise of ordinary care. The wife's physician testified "She was idiosyncratic to it or she had vascular disease that I, even though I did all I could within my knowledge, overlooked in my diagnosis of the case." The degree of care to be exercised by a manufacturing chemist, said the court of appeals, when compounding and selling a medication with a prescription, as here, is that prescribed by the code as to the "administering of medicine" professionally, to wit, a reasonable degree of care and skill. "This standard prescribed by the code, 'when applied to the facts and circumstances of any particular case, must be taken and considered to be such a degree of care and skill as, under similar conditions and like surrounding circumstances, is ordinarily employed by the profession generally.' " The evidence in this case, concluded the court of appeals, commanded a finding that no negligence was shown on the part of the defendant. The case was not proved, and, no negligence being shown, the trial court's judgment in favor of the defendant was affirmed. *Webb v. Sandoz Chemical Works, 69 S. E. (2d) 689 (Georgia, 1952).*

Malpractice: Unauthorized Operation—Emergency.—The plaintiff sued for damages alleged to have been caused by the performance of an unauthorized operation by the defendant physician. From a judgment in favor of the defendant, the plaintiff appealed to the district court of appeal, first district, division 2, California.

The plaintiff suffered a severe abdominal pain and summoned the defendant, Morton, to treat her. He diagnosed her case as appendicitis and salpingitis and advised an immediate operation. During the operation the defendant found that plaintiff's fallopian tubes were full of pus, a condition much more serious than the inflammation that he had originally diagnosed. He therefore removed not only the appendix but the diseased part of both tubes. With reference to the necessity for the operation on the tubes, Dr. Morton testified that in his opinion it was necessary to remove the portions of the fallopian tubes to save the plaintiff's life because there was free pus there, and when there is free pus in the abdomen with inflammation it is liable to extend up above, and it is good judgment to take it out. "Q. What will happen if it extends up above? A. Well, you get a general peritoneal inflammation of the cavity that they have described there, and that is called inflammation of the bowels, or general peritonitis, and when that does occur, it often produces fatality." Dr. Morton explained the difference between an ordinary salpingitis where there is a drainage of pus and a pyolsalpinx where there is a failure or lack of drainage and said: "But whenever it becomes blocked and fills up, you get a pyolsalpinx. Then you have got a very serious condition, and that is what happened in this case." The physician who assisted Dr. Morton in the operation testified that there was no way to cure the condition without removing the tubes and that removal was the only thing that could be done to preserve plaintiff's life and health. While the plaintiff was in the hospital, and before the operation, she signed the following writing: "I, the undersigned, having engaged Dr. Morton, physician and surgeon, do hereby grant him the authority and give my consent for him to administer and perform all and singular any treatments or operation to or upon me which may now or during the contemplated services be deemed advisable or necessary." The plaintiff testified that this writing was brought to her room by a nurse before the operation, that she had read it, and that the signature thereon was hers. She alleged, however, that no medical necessity, justification, or excuse existed for cutting and tying her fallopian tubes; that no medical or surgical emergency was involved therein; that she was then and there of full age and of sound mind, fully capable of consenting to any operation that might be necessary; and that her consent was not obtained by defendant insofar as the removal of the fallopian tubes was concerned. The plaintiff's attorney argued that this action was not based on any lack of skill on the part of the defendant physician nor on any theory of wrong diagnosis. It was based, he contended, on an action for assault and battery.

When the matter in issue is within the knowledge of experts only and is not within the common knowledge of laymen, said the district court of appeals, the expert evidence is conclusive. No evidence, either expert or otherwise, was produced by the plaintiff to contradict the testimony of the two surgeons as to the necessity for the operation on the plaintiff's fallopian tubes. Therefore, said the court, the allegation that no medical or sur-

gical emergency for the operation on the tubes existed was not only not proved but was definitely disproved by uncontradicted evidence. There was likewise a failure of proof of plaintiff's allegation "that her consent was not obtained . . . to the said operation insofar as the same involved the fallopian tubes. . . ." Such consent, or lack thereof, the court said, was thus tendered as one of the important issues for the jury. The writing gave consent to "administer and perform all and singular any treatments or operation . . . which may now or during the contemplated services be deemed advisable or necessary." The jury, said the court, apparently treated the consent as embracing not only the appendectomy but whatever further operation might be considered necessary after the abdomen had been opened up and explored by the surgeon. The language of the consent meant just such a situation as that which developed in this case.

The plaintiff's contentions relating to the granting of certain instructions by the trial court were also overruled, and the judgment in favor of the defendant physicians was affirmed. *Danielson v. Roche et al., 241 P. (2d) 1028 (California 1952).*

MEDICAL MOTION PICTURES

Tantalum Mesh Implant in Large Incisional Hernia: 16 mm., color, silent, showing time 28 minutes. Prepared by Alfred H. Iason, M.D., Brooklyn. Produced in 1952 by and procurable on loan from Bergman Associates, 732 Eastern Parkway, Brooklyn.

The purpose of this film is to demonstrate the author's technique in repairing difficult hernias with the use of tantalum mesh. The viewer is disoriented from the very start, since no warning is given as to what is transpiring. One is immediately plunged into a view of a spinal anesthetic being administered. Too much footage is devoted to the technique of the continuous subarachnoidal block. A legend as to the type of anesthesia preferred would have sufficed. The author states that the length of the incision suggests the size of the hernia. Since many feet of bowel may herniate into a small defect in the anterior abdominal wall, this statement cannot be substantiated. It would have been well to include a brief résumé as to what the earlier operation was done for, since it is questionable whether this is a repair of an incisional hernia or a first repair following some other surgical procedure. Most of the cases presented were in obese patients, and, since fat is a predisposing cause to recurrence, one is left to assume that these patients, although still heavy, have been on a rigid dietary regimen. It would have been better if specific cases were shown in both preoperative and postoperative continuity rather than showing a group of cases preoperatively and then a separate group of cases postoperatively. The surgical technique is well executed. Since the use of tantalum is controversial, one would hesitate to recommend this as a teaching film for medical students. It is purely a case record and would be of some value to those interested in the subject of herniorrhaphy. Although the picture is not well organized, the photography is very well done.

Primary Hyperparathyroidism: 16 mm., color, silent, showing time 20 minutes. Prepared by Joel W. Baker, M.D., and Randolph P. Pillow, M.D., the Mason Clinic, Seattle. Produced in 1951 by and procurable on loan from Davis & Geck Inc., 57 Willoughby St., Brooklyn.

The manifestations of hyperparathyroidism are thoroughly described and most of them effectively illustrated in a patient. The biochemical abnormalities are likewise presented. Numerous roentgenograms reveal various types of lesions produced by the disease. The clinical improvement obtained in one patient is rather dramatically illustrated 10 days after operation. The film covers the subject adequately, and it is presented in a concise fashion. The photography is excellent with the exception of a sequence of the patient before treatment. It should be of value to the medical student as well as to any clinician not thoroughly familiar with the disease.

NEW MOTION PICTURES ADDED TO A. M. A. FILM LIBRARY

The Story of Wendy Hill. Color, sound, showing time 18 minutes. Available through the Committee on Medical Motion Pictures. Service charge ($2.00).

This production is intended to acquaint the lay audience with the fact that an asymptomatic diabetic faces hazards and that an early diagnosis is a basis for satisfactory treatment aimed at avoiding complications. The story is portrayed by Dr. Wood, a general practitioner, about Wendy Hill, a young married woman, who is injured in traffic and found to have glycosuria when hospitalized.

(A complete review was published in THE JOURNAL June 25, 1949, page 750.)

Emotional Health. Black and white, sound, showing time 20 minutes. Available through the Committee on Medical Motion Pictures (service charge $3.00).

In this film, a youth consults a general practitioner for "heart trouble" and is told that he is in normal physical condition but that his cardiac symptoms may be due to functional disturbances arising from emotional stresses. Excerpts from several of the patient's subsequent interviews with the psychiatrist are then recorded, and the patient's anxieties are traced to conflictive familial, sexual, and social attitudes.

(A complete review was published in THE JOURNAL May 22, 1948, page 405.)

Glaucoma: What the General Practitioner Should Know. Color, sound, showing time 22 minutes. Available through the Committee on Medical Motion Pictures (service charge $3.00).

This film has been made to bring home to the general practitioner the high incidence of blindness due to glaucoma so that he will be on the watch for signs and symptoms of its existence in his patients, to show him how to recognize these signs and symptoms, and to point out the necessity of referring such patients to an ophthalmologist for a definitive diagnosis and treatment immediately.

(A complete review was published in THE JOURNAL March 8, 1952, page 866.)

Surgical Approaches to the Hip Joint. Color, sound, showing time 30 minutes. Available through the Committee on Medical Motion Pictures. Service charge ($3.00).

Animated diagrams show the anatomy of the anterior and posterior aspects of the hip joint. Operations employing approaches to the anterolateral, straight lateral, and posterolateral aspects of the joint are shown. Each is recapitulated in animation.

(A complete review was published in THE JOURNAL Jan. 3, 1953, page 66.)

Preface to a Life. Black and white, sound, showing time 28 minutes. Available through the Committee on Medical Motion Pictures. Service charge ($1.00).

This motion picture presents the story of a child from infancy through the formative years. Emphasis is placed on the influence of parents, teachers, neighbors, playmates, and others who, through their treatment of him, can inculcate patterns of good or evil in his human relationships.

(A complete review was published in THE JOURNAL Oct. 28, 1950, page 784.)

Surgical Approaches to the Knee Joint. Color, sound, showing time 36 minutes. Available through the Committee on Medical Motion Pictures. Service charge ($3.00).

The approaches used in the film are the median parapatellar, the approach for excision of the medial meniscus, the approach to the lateral compartment of the knee, and an especially well-shown dissection of the popliteal space and the posterior knee compartment.

(A complete review was published in THE JOURNAL Sept. 29, 1951, page 526.)

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A. M. A. Arch. Otolaryngology, Chicago

57:123-244 (Feb.) 1953. **Partial Index**

*Etiologic Analysis of 100 Cases of Ménière's Symptom-Complex. L. K. Gundrum.—p. 123.
Hearing Losses After Experimental Lesions in Basal Coil of Cochlea. H. F. Schuknecht and S. Sutton.—p. 129.
Nonexperimental Nasal and Paranasal Pathology in Hereditarily Obese Mice. G. Kelemen.—p. 143.
Clinical Aspects of Tumors of Maxillary Sinus. C. A. Heatly.—p. 152.
Primary Tumors of Frontal Bone. H. Brunner.—p. 158.
Laryngofissure Approach in Surgical Treatment of Bilateral Abductor Paralysis. A. A. Scheer.—p. 173.
Subcutaneous Rupture of Trachea. B. F. Metson.—p. 182.
Water-Soluble Contrast Medium for Bronchography. M. E. Flipse, G. A. Hedberg and V. R. Krueger.—p. 188.
Otitis Media and Complications. B. R. Dysart.—p. 211.

Ménière's Symptom Complex.—Gundrum examined the postnasal secretions of 100 consecutive cases of Ménière's syndrome or labyrinthine hydrops for eosinophils or neutrophils and studied the clinical results of therapy based on the cytologic picture of the secretions. In forty-three of 100 cases Ménière's syndrome was apparently brought about by head injury. The cytologic pattern of the postnasal secretion was normal in all but three of these cases, in each of which there was neutrophilia. In 34 patients Ménière's syndrome was associated with allergy, in 10 with infection and in 13 with none of these factors. The subjective data on which the diagnosis of Ménière's symptom-complex was based in the entire series of cases consisted in dizziness, spontaneous nystagmus, staggering, nausea, tinnitus, deafness, allergic symptoms and/or history of sinusitis, true vertigo, and headache. In 28 of the 34 cases attributed to allergic factors, eosinophils were observed in the postnasal secretion. In the other six, the postnasal secretions were normal or contained only neutrophils. The importance of the cytologic examination of the postnasal secretion in Ménière's syndrome is demonstrated particularly in this group. Only 12 patients had allergic symptoms or a history of allergy. Had cytologic study of the postnasal secretions not been done, the cause of the symptoms in 16 of this group might have been missed. Twenty-seven of these 34 patients received allergic therapy. In 18 this consisted in standard cutaneous testing and desensitization, and in 9 antihistamine therapy was administered; 26 of the 27 patients improved. In all 10 cases of the group in which the Ménière syndrome was associated with infection, neutrophils were observed in the postnasal secretion. Treatment in eight consisted in administration of antibiotics or histamine and use of a low-sodium diet. Six of the eight patients obtained symptomatic relief. The cytologic picture of the postnasal secretion was normal in nine cases of Ménière's symptom-complex not associated with allergy, infection, or injury. Three of these patients had central nervous system lesions; in the other six treatment consisted in use of histamine, a low-sodium diet, and nicotinic acid. Four patients received symptomatic relief, and one had improved hearing after treatment. The author feels that the diagnostic accuracy of cytologic examination of postnasal secretions is confirmed by these observations.

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Titles marked with an asterisk (*) are abstracted.

American Journal of Pathology, Ann Arbor, Mich.

29:1-184 (Jan.-Feb.) 1953

Lack of Cortisone Effect in Early Stages of Inflammation and Repair. R. Lattes, J. W. Blunt Jr., H. M. Rose and others.—p. 1.
Normal Glomerulus and Its Basic Reactions in Disease. J. F. Rhinehart, M. G. Farquhar, H. Chan Jung and S. K. Abul-Haj.—p. 21.
Glomerulonephritis. D. B. Jones.—p. 33.
Sarcoid and Sarcoid-Like Granulomas: Study of 27 Post-Mortem Examinations. R. L. Engle Jr.—p. 53.
Infrequency of Lipid Deposition in Sclerotic Veins. R. T. McCluskey and S. L. Wilens.—p. 71.
Reticular Perithelioma of Thymus. R. H. Pope and R. Osgood.—p. 85.
Studies on Reduction of Tetrazolium Derivatives by Normal and Diseased Human Tissues. Y. T. Hsu and C. Hoch-Ligeti.—p. 105.
*Utilization of Pure Strain of Mammalian Cells (Earle) for Cultivation of Viruses In Vitro. I. Multiplication of Pseudorabies and Herpes Simplex Viruses. W. F. Scherer.—p. 113.
Cultivation of Equine Abortion Virus in Fetal Horse Tissue In Vitro. C. C. Randall, F. W. Ryden, E. R. Doll and F. S. Schell.—p. 139.
Psittacotic Lesions and Respiratory Immunity in Intradermally Vaccinated Guinea-Pigs. J. Wagner and J. Victor.—p. 155.
Electron Micrographs of Erythrocytes from Cotton Rats Infected with Lansing Strain of Poliomyelitis Virus. R. L. Reagan, W. C. Day, M. P. Harmon and A. L. Brueckner.—p. 175.

Multiplication of Viruses in Strain of Mammalian Cells.—A pure strain of altered mouse fibroblastic cells (L strain, Earle), derived from a single cell, was found to support the multiplication of pseudorabies and herpes simplex viruses in vitro. Type A intranuclear inclusion bodies occurred in L strain cells infected with either virus. The production of virus in cultures of these cells was greatest when the cells were maintained in a physiologically active state by the use of a horse serum-embryonic extract medium at 37 C (98.6 F). Less virus was obtained from cultures that contained cells kept at a lower level of metabolic activity by the use of diluted ox serum ultrafiltrate at 37 C (98.6 F). Viral production was minimal, or not detectable, in cultures in which the cells were in a state of apparent metabolic and reproductive inactivity, consequent to the utilization of a maintenance solution at 22 to 25 C (71.6 to 77 F).

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

69:179-360 (Feb.) 1953

Partially Explored Field of Clinical Radiation Therapy. C. L. Martin.—p. 179.
Transvaginal Cone Roentgen Irradiation in Cancer of Cervix Uteri: Report of 12 Years' Experience. J. Y. Howson, B. P. Widmann and J. L. Weatherwax.—p. 182.
Cancer of Esophagus: Surgical Considerations. W. L. Watson.—p. 191.
Carcinoma of Eyelids. B. Roseberg.—p. 196.
Chronic Massive Thrombosis of Pulmonary Arteries: Report of Seven Cases with Clinical and Necropsy Studies. D. R. Keating, J. N. Burkey, H. K. Hellerstein and H. Feil.—p. 208.
Myelographic Demonstration of Spinal Cord Metastases from Primary Brain Tumors. E. H. Wood, J. M. Taveras and J. L. Pool.—p. 221.
Value of Pantopaque Myelography in Diagnosis of Herniation of Nucleus Pulposus in Lumbosacral Spine: Report of 500 Cases. S. A. Leader and M. J. Rassell.—p. 231.
*Photofluorography for Detection of Unsuspected Gastric Neoplasms. R. Wigh and P. C. Swenson.—p. 242.
Meckel's Diverticulum: New Roentgen Diagnostic Sign and Case Report. H. H. Lerner, S. S. Levinson and A. E. Kateman.—p. 268.
Developmental Malformations Produced by Radiation: Timetable of Their Development. S. P. Hicks.—p. 272.
Note on Brain Clip as an Aid in Esophageal Diagnosis. E. D. Palmer.—p. 294.

Photofluorography in Detection of Unsuspected Gastric Neoplasms.—Since 1947, 3,904 women and 1,437 men, between the ages of 40 and 89, have been subjected to 7,075 examinations at the department of radiology of the Jefferson Medical College Hospital in Philadelphia in an attempt to uncover unsuspected gastric neoplasms by photofluorographic means, using 70 mm. camera equipment. The roentgenographic technical factors were as follows: a tube-screen distance of 36 inches, employing 200 ma. with a potential of 95 kv., with the time photoelectrically controlled. The total dosage at the skin, including backscatter, ranged between 4 and 12 r for six exposures; three were made rapidly after the swallowing of 1

oz. (30 gm.) of barium sulfate mixture, and three additional exposures were made after the intake of 5 additional ounces of barium sulfate mixture. The criteria for selection of a suitable candidate were that he be 40 years or more of age and that he have no upper gastrointestinal tract symptoms of such nature that they particularly attracted his attention or that of his physician. Of the 7,075 fluorographic studies, 6,566 (92.8%) were considered satisfactory from a screening standpoint and 509 (7.2%) were technically unsatisfactory. In 4,993 (93.5%) of the 5,341 persons examined the status of the stomach on the miniature films was interpreted as negative for neoplasm; in 322 persons standard gastrointestinal examination was recommended because of the photofluorographic findings, and the remaining 26 persons were lost to follow-up. By using photofluorographic screening methods gastric tumors were detected in 11 of 5,096 persons who were either totally asymptomatic or were free of appreciably significant gastrointestinal complaints. The inclusion of 245 symptomatic persons in the entire group of 5,341 occurred through initial uncertainty on the part of some referring physicians as to who would be considered a suitable candidate. Of these 11 persons between the ages of 45 and 69, 3 had carcinoma, while the others had polypoid neoplasms. The incidence of unsuspected neoplasms thus is 2.1 per 1,000 examinees; the incidence of unsuspected gastric carcinomas 0.6 per 1,000. The 11 gastric neoplasms were found in 3.4% of the 322 persons for whom regular gastrointestinal examinations were recommended, i. e., in every 30 standard gastric examinations. The fact that adenomas are found with such greater frequency than carcinomas in surveys on asymptomatic persons and with such considerably less frequency then carcinomas in symptomatic patients would imply that many carcinomas are founded on an adenomatous basis. Previous roentgenoscopic detection methods, and other evidence, have indicated that the survival rate for persons who had concealed gastric cancer far exceeds that for symptomatic patients. The authors' experiment in the photofluorographic method for the detection of unsuspected gastric neoplasms established the facts that the approach is simple, well received by the laity, safe, accurate, suitable for large population groups, nonrestrictive, inexpensive, capable of uncovering unsuspected gastric cancer and at least one of its precursors at a more favorable period for surgical treatment, and is professionally practical.

Am. J. Tropical Medicine & Hygiene, Baltimore

2:1-172 (Jan.) 1953. Partial Index

Medical Mission to the Yemen, Southwest Arabia, 1951. R. A. Mount. —p. 1.
Epidemiological Survey Among Gola Tribe in Liberia. H. A. Poindexter. —p. 30.
Effects of Various Treatment Procedures on Metabolism of Trypanosoma Cruzi and on its Ability to Support Growth of Endamoeba Histolytica. B. P. Phillips.—p. 47.
Relative Activity of Common Sulfonamides Against Experimental Toxoplasmosis in the Mouse. D. E. Eyles and N. Coleman.—p. 54.
Antibiotics in Treatment of Toxoplasmosis. D. E. Eyles and N. Coleman.—p. 64.
Response of Syrian Hamster to Two Strains of Rabies Street Virus by Rectal Instillation. R. L. Reagan, W. C. Day, S. Moore and others. —p. 70.
Yaws on Guam: Treatment and Environmental Considerations. R. E. Rock.—p. 74.
Intradermal Reactions to Schistosome and Filaria Antigens in Patients Before and After Treatment of Parasitic Infections. J. Oliver-González.—p. 79.
Terramycin in Schistosomiasis: Trial in Six Cases. M. Gelfand and W. D. Alves.—p. 95.
*Xenodiagnostic Technic as Aid in Diagnosis of Trichinosis. J. W. Beck. —p. 97.
Persistence of Hookworm Larvae in Soil. P. C. Beaver.—p. 102.
Growth Stimulating Effect of APF, Terramycin Hydrochloride, Vitamin B_{12} and Undetermined Factor "X" Upon Aedes Aegypti (L) (Diptera, Culicidae). R. W. Williams.—p. 109.
Stingray Attacks and Their Treatment. B. W. Halstead and N. C. Bunker. —p. 115.
Clinical and Pathological Analysis of Snake Bites on Panama Canal Zone. D. A. Jutzy, S. H. Biber, N. W. Elton and E. C. Lowry.—p. 129.
The L-C Treatment of Venomous Bites or Stings. H. L. Stahnke.—p. 142.

Diagnosis of Trichinosis.—A study was made of 100 human diaphragms in Mexico City to determine the incidence and degree of infection with Trichinella spiralis. Direct microscopic examination of samples weighing 50 gm. or more revealed a high incidence (15%) of low grade infections. Twelve of the 15 positive cases showed less than 1 cyst per gram of tissue, while 9 showed less than 1 cyst per 10 gm. of tissue. These results show that if the older routine method of examining 1 gm. of tissue microscopically with digestion of the remainder had been employed, a majority of the cases would have been missed, for this technique misses dead larvae of the order of less than one per gram. Xenodiagnosis, using albino rats, was used to detect viability in the positive cases. This method is proposed as a means of detecting all cases having viable larvae in future survey work.

Angiology, Baltimore

4:1-102 (Feb.) 1953

Congenital and Experimentally Produced Pericardial Defects. T. C. Moore and H. B. Shumacker Jr.—p. 1.
Segmental Nature of Peripheral Arteriosclerosis: Surgical Application. O. C. Julian, G. De Takats and W. S. Dye.—p. 12.
Effect of Respiratory Enzyme on Healing of Ulcers of Lower Extremity: Preliminary Report. A. M. Schwartz.—p. 18.
Fatal Pulmonary Embolism During Regional Nerve Anesthesia. J. C. Owens and A. J. Smith.—p. 23.
Lymphedema Precox. J. W. Smith, L. M. Rankin and S. P. Pechin. —p. 33.
Surgical Treatment of Post Phlebitic Leg. H. P. Totten.—p. 38.
Atresia of Subclavian Artery Associated with Coarctation of Aorta. W. D. O'Sullivan.—p. 56.
Pathogenic Study of Varicose Veins. P. Piulachs and F. Vidal-Barraquer. —p. 59.

Annals of Otol., Rhin. and Laryngology, St. Louis

61:937-1240 (Dec.) 1952. Partial Index

*Aerotitis Media: Critical Review. R. W. Hyde.—p. 937.
Problems in Differential Diagnosis of Lesions of Lower Portion of Esophagus and Cardia. H. J. Moersch.—p. 976.
Prolonged Local Anesthetic in Control of Post-Tonsillectomy Pain. M. Davidson, R. G. Boles and S. C. Snyderman.—p. 1046.
Treatment of Deafness by Prosthesis. H. G. Kobrak.—p. 1053.
Obstruction of Air Passages. W. A. Weller.—p. 1080.
Treatment of Malignancy of Buccal Mucous Membrane, Gingiva, Soft and Hard Palate. J. W. Hendrick.—p. 1094.
Hidden or Unsuspected Bronchiectasis in the Asthmatic. R. H. Overholt and J. H. Walker.—p. 1198.

Aerotitis Media.—With the growing popularity of commercial air transport, and particularly now that jet transport is an actuality, aerotitis will be seen more often by the otolaryngologist in private practice. Much of the literature on the subject is based on research activities during World War II. Hyde discusses the incidence, etiology and treatment, placing emphasis on the possible predisposing role of upper respiratory infection, nasopharyngeal lymphoid tissue, and allergy. Variations in season and climate and in virulence and frequency of organisms causing upper respiratory infections may partly explain apparent discrepancies in data. The author feels that while a relation does exist between the incidence of upper respiratory infection and aerotitis media, its importance has been overemphasized. Increased difficulty in the act of autoinflation may be experienced in the presence of a head cold, and as a rule, it would be better if individuals with colds could avoid flying until the cold is improved. More attention should be paid to the possible role of allergy in aerotitis media. Ability to perform the Valsalva maneuver is a better criterion than the existence of a head cold or a deviated nasal septum for acceptance for altitude chamber flights, but inaptitude in the performance of the Valsalva maneuver is common. The value of the Valsalva maneuver in preventing locking of the eustachian tube with resultant aerotitis far outweighs the possible danger of causing suppurative otitis media by this method. Ideal treatment is reascent to the level at which successful middle-ear ventilation is achieved; if this method is unavailable, vasoconstriction followed by middle-ear inflation is the treatment of choice. Dental measures and nasopharyngeal irradiation give good results in some cases of recurrent aerotitis. Although conductive deafness is one of the commonest symptoms of aerotitis media, it is generally slight and only temporary. Sufficient time for complete recovery must be allowed before a patient who has had an acute attack of aerotitis is again permitted to fly.

Archives of Physical Medicine, Chicago

34:1-58 (Jan.) 1953

Gait Studies of Hemiplegic Patient and Their Clinical Applications: Stroboscopic and Force Plate Studies. M. Marks.—p. 9.
*Effects of Ultrasound on Growing Bone: Experimental Study. R. E. De Forest, J. F. Herrick, J. M. Janes and F. H. Krusen.—p. 21.
Effect of Various Procedures on Flow of Lymph. E. C. Elkins, J. F. Herrick, J. H. Grindlay and others.—p. 31.
Rehabilitation of 120 Lobotomized Patients in a VA Hospital. C. H. Reagan.—p. 40.

Effects of Ultrasound on Growing Bone.—This experimental study was undertaken because of reports in the European literature concerning the widespread clinical use of ultrasonic energy and reports of the effects of ultrasound on the bones of animals. The upper tibial epiphyseal region of 9 dogs and 29 rabbits was exposed to ultrasonic energy. The three basic doses used were 5 watts of ultrasonic energy for five minutes, 10 watts for five minutes, and 10 watts for ten minutes. One of these basic doses was applied to each animal one or more times. The ultrasonic generator used had a frequency of 800,000 cycles per second and its quartz crystal was 2.5 cm. in diameter. Changes in bone were observed by means of roentgenograms made prior to the first ultrasonic application and periodically thereafter. The lengths of the tibias and femurs of 9 dogs and 16 rabbits were determined by means of a caliper. The results obtained lead to the following conclusions: 1. Ultrasonic energy does not cause acceleration of the longitudinal growth of bone. 2. Ultrasound has a destructive effect on growing bone in the upper tibial epiphyseal region and adjacent structures of the knee joint. 3. The degree of destruction of growing bone caused by any ultrasonic dose is unpredictable, as there is great variability of reaction to ultrasound. 4. Ultrasonic energy produces shortening of the tibia and femur, irreparable destructive effect in the knee joint, the adjacent tibial and femoral epiphysis, epiphyseal cartilage, and diaphysis. 5. Until safe doses are worked out through further experimental investigation, ultrasonic therapy should not be applied to growing human bone.

Connecticut State Medical Journal, Hartford

17:89-176 (Feb.) 1953

Recent Trends in Nutrition and Future Possibilities. G. R. Cowgill.—p. 91.
Outpouching from the Pregnant Uterus. H. C. Taylor.—p. 98.
Spontaneous Hemopneumothorax. J. H. Huss.—p. 101.
Recognition and Treatment of Deafness in Children. W. J. Neidlinger.—p. 104.
What Connecticut Offers its Cerebral Palsied Children. R. V. Fuldner.—p. 108.
The Medical Examiner System in Connecticut. B. Rafferty.—p. 114.
Which Way America? W. H. Judd.—p. 117.

Diabetes, New York

2:1-84 (Jan.-Feb.) 1953

*Potassium in Treatment of Diabetic Coma. J. H. Crampton, G. W. Mellinger and L. J. Palmer.—p. 1.
Houssay Phenomenon in Man; Recovery from Retinopathy in Case of Diabetes with Simmonds' Disease. J. E. Poulsen.—p. 7.
X-Ray Therapy in Retinopathy. R. H. Trueman, J. T. Beardwood Jr. and J. J. Smith.—p. 13.
Insulin Content of Blood Plasma. J. Bornstein.—p. 23.
Hormones and Metabolism of Isolated Tissues. M. E. Krahl.—p. 26.
Detection of Mild Diabetes Mellitus by Feeding Glucose to Induce Glycosuria. P. H. Futcher and G. Sauvé.—p. 31.
*Mass Screening for Diabetes: Use of Device for Collection of Dried Urine Specimens and Testing for Sugar (St. Louis Dreypak). W. H. Olmsted, N. W. Drey, H. Agress and H. K. Roberts.—p. 37.
Results of Screening Program for Diabetes Mellitus. R. Harwood.—p. 43.
Diabetes Fair: Report on Successful Educational Service. H. Blotner.—p. 47.

Potassium in Treatment of Diabetic Coma.—Since June, 1948, insulin, fluid therapy, and supplemental potassium therapy have been used in the treatment of 53 patients between 5 and 65 years of age with diabetic coma at the Mason Clinic in Seattle, Washington. Up to 700 or more units of insulin were given during the first two hours; this dose was determined by clinical evaluation of the patient and was equal to half the admission value for blood sugar. Rehydration was accomplished with isotonic sodium chloride solution given intravenously. Additional insulin was given at the fourth hour if the blood sugar had not fallen to one-half of the original level. If the urinary output was observed to be adequate, dibasic potassium phosphate was given by stomach tube and in fluids given orally beginning at the fourth hour. Potassium was given intravenously only if the patient was unable to retain it when given by mouth or if symptoms of hypopotassemia occurred; in only five of the authors' patients this route of administration was to be considered necessary. Some patients received as much as 48 gm. of dibasic potassium phosphate (551 mEq. of potassium). The average amount administered was 18.6 gm. (214 mEq. of potassium). Three illustrative cases are described. No fatalities occurred among the 53 patients, in contrast to 3 deaths in a similar group of 32 patients who had been treated before the inauguration of supplemental potassium therapy. The authors feel that the free use of potassium salts has been a significant factor in the absence of death, and that the efficacy of their plan of treatment thus has been demonstrated.

Mass Screening for Diabetes Mellitus.—Through the agency of 270 drug stores, 41,500 kits consisting of a strip of coarse filter paper impregnated with sodium fluoride and inserted in an envelope along with an instruction sheet were distributed to the general public of St. Louis in 1950. To prepare for testing, the strip is quickly dipped into urine and allowed to dry. Experiments have shown that the dried sugar is preserved for as long as 90 days. The name "St. Louis Dreypak" has been given to this device. Of the 41,500 kits, 5,087 strips were returned for glycosuria tests, i. e., 12% of those distributed. In addition, the employees of four industrial concerns received 13,000 kits and returned 1,923 (14.8%). A team of four volunteer workers plus one physician or technician examined more than 1,000 specimens in one hour. Of 5,087 strips collected from the general public, 391 (7.7%) gave a positive reaction to the test for sugar. Of 1,923 strips collected from workers' families, 68 (3.5%) were positive. Age and sex were observed to be important factors in those actively participating in the tests. Mature adults and older people, especially women, predominated. Those persons having a positive reaction to the glycosuria tests were invited to submit to a blood sugar test and 61% accepted the invitation. Of 280 persons who had glycosuria, 145 had postprandial blood sugar values less than 120 mg. per 100 cc., which strongly indicated that the glycosuria was nondiabetic or transitory. The remaining 135 persons had blood sugar values ranging from 120 to 400 mg.; in the last group of 135 persons 72% were about 50 years of age, and of these about two-thirds were women. The convenience and rapidity of this method of collecting and examining urine for sugar is described. Its superior efficiency to other methods of large-scale urine testing is demonstrated.

Endocrinology, Springfield, Ill.

51:463-590 (Dec.) 1952

Androgen Excretion in Human Bile. B. L. Rubin, R. I. Dorfman and M. Miller.—p. 463.
Significance of Changes in Renal and Hepatic L-Glutamic Acid Dehydrogenase Activity in Hypophysectomized or Normal Rats Treated with Growth Hormone or Thyroxin. O. H. Gaebler and J. C. Mathies.—p. 469.
Effects of Feeding Rape Oil on Some Endocrine Functions of the Rat. K. K. Carroll and R. L. Noble.—p. 476.
Work Performance of Normal Rats Given Continuous Intravenous Injections of Cortisone and of Corticotropin. D. J. Ingle, E. H. Morley and J. E. Nezamis.—p. 487.
Bioassay of Pitressin and Antidiuretic Substances in Blood and Urine. M. Stein, R. Jinks and I. A. Mirsky.—p. 492.
Thyroid and Reproductive Performance in Adult Female Guinea Pig. R. R. Peterson, R. C. Webster, B. Rayner and W. C. Young.—p. 504.
Inhibitory Action of Various Steroids on Hooker-Forbes Assay for Progesterone. A. G. Olsen, H. A. Salhanick and F. L. Hisaw.—p. 519.
Effect of Thyroid Preparations and Iodide on Salmonidae. G. La Roche and C. P. Leblond.—p. 524.
Metabolism of Radioiodine by Near-Term Bovine Fetus. A. Gorbman, S. Lissitzky, O. Michel and others.—p. 546.
Influence of Environmental Temperature on Metabolism of Thyroid Hormone in the Rat. C. G. Rand, D. S. Riggs and N. B. Talbot.—p. 562.

Hawaii Medical Journal, Honolulu

12:167-250 (Jan.-Feb.) 1953

Public Health and Medical Care in Hawaii. E. R. Weinerman.—p. 185.
Human Fascioliasis in the Hawaiian Islands. J. E. Alicata.—p. 196.

Journal of Applied Physiology, Washington, D. C.

5:311-374 (Jan.) 1953

Lean Body Mass as Metabolic Reference Standard. A. T. Miller Jr. and C. S. Blyth.—p. 311.
Distribution and Turnover of Administered Rubidium (Rb^{86}) Carbonate in Blood and Urine of Man. A. Zipser, H. B. Pinto and A. S. Freedberg. —p. 317.
Intercellular Plasma of Centrifuged Human Erythrocytes as Measured by Means of $Iodo^{131}$-Albumin. C. A. Owen Jr. and M. H. Power.—p. 323.
Changes in Flicker Fusion Frequency Under Stress. J. Brozek, E. Simonson and H. L. Taylor.—p. 330.
Respiratory and Glycolytic Activities of Human Leukocytes in Vitro. G. R. McKinney, S. P. Martin, R. W. Rundles and R. Green.—p. 335.
Respiratory Dead Space. T. Hatch, K. M. Cook and P. E. Palm.—p. 341.
Pneumotachographic Studies in Man and Dog Incorporating Portable Wireless Transducer. P. E. Morrow and R. E. Vosteen.—p. 348.
Determination of Residual Volume and Residual Volume/Total Capacity Ratio by Single Breath Technics. E. H. Lanphier.—p. 361.
Neurohemodynamics of Pulmonary Edema: III. Estimated Changes in Pulmonary Blood Volume Accompanying Systemic Vasoconstriction and Vasodilation. S. J. Sarnoff, E. Berglund and L. C. Sarnoff.—p. 367.

Journal of Bone and Joint Surgery, Boston

35A:1-284 (Jan.) 1953. **Partial Index**

Presidential Address. F. A. Chandler.—p. 1.
Intramedullary Fixation in Fractures of Hand and Fingers. F. H. vom Saal—p. 5.
*Importance of Direct Surgical Attack Upon Lesions of Vertebral Bodies, Particularly in Pott's Disease. R. W. Johnson Jr., J. W. Hillman and W. O. Southwick.—p. 17.
*Osteochondritis Dissecans in Children. W. T. Green and H. H. Banks. —p. 26.
Rotation Osteotomy in Treatment of Congenital Dislocation of Hip. E. Platou.—p. 48.
Incidence of Tumor Metastasis to Lumbar Spine: Comparative Study of Roentgenographic Changes and Gross Lesions. J. M. Young and F. J. Funk Jr.—p. 55.
Shelf Operation in Congenital Dysplasia of Acetabulum and in Subluxation and Dislocation of Hip. G. Wiberg.—p. 65.
Management of Contralateral Hip in Slipped Capital Femoral Epiphysis. A. Klein, R. J. Joplin, J. A. Reidy and J. Hanelin.—p. 81.
Ischaemic Contracture, Local, In Hand. S. Bunnell.—p. 88.
Etiology of Separate Neural Arch. G. G. Rowe and M. B. Roche. —p. 102.
Pathological Anatomy in Talipes Equinovarus. D. Flinchum.—p. 111.
Deformities of Hand Incidental to Pathological Changes of Extensor and Intrinsic Muscle Mechanisms. J. L. Goldner.—p. 115.
Problems with Trauma to Hand. J. E. Flynn.—p. 132.
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Compression Arthrodesis of Knee. H. C. Fett and E. L. Zorn.—p. 172.
Tendinitis of Insertion of Common Extensor Tendon of Fingers. M. Burman.—p. 177.
Capsular Arthroplasty for Congenital Dislocation of Hip: Two-Stage Procedure. P. C. Colonna.—p. 179.

Surgical Attack on Lesions of Vertebral Bodies.—To determine the place of direct surgical procedures in the diagnosis of spine lesions, 407 patients admitted to the Johns Hopkins hospital either with the diagnosis of tuberculosis of the spine, or with some other diagnosis which was changed to tuberculosis of the spine between 1926 and 1951, were studied. In about 30% of the 407 patients the diagnosis of tuberculous spondylitis was proved by nonoperative means. This percentage was increased to 52% by direct vertebral biopsy of the lesion carried out between 1946 and 1951. The difficulty of making an exact diagnosis of lesions of the vertebral bodies by clinical and roentgenographic study alone is demonstrated by 68 of the 407 patients in whom a diagnostic error had been made. Of these 68 patients, there were 8 in whom lesions which had been erroneously diagnosed as tuberculous spondylitis were proved to be nontuberculous by the clinical course or necropsy, and 31 in whom some other condition had been initially considered and tuberculous spondylitis was established as the correct diagnosis by the clinical course or necropsy. The contribution of direct vertebral biopsy of the lesion toward obtaining early unequivocal diagnosis was established by the remaining 29 cases. In 8 of them all preoperative evidence had pointed to tuberculous spondylitis, but at operation such conditions as Hodgkin's disease, giant-cell tumor, multiple myeloma, osteomyelitis, fracture, or aortic aneurysm were observed, while in additional 21 cases in whom a wide variety of diseases had been initially considered, at direct operation the presence of tuberculous spondylitis was demonstrated. An erroneous diagnosis was found in 38 of 320 patients between 1926 and 1945, the reversal or correction of diagnosis being made almost entirely at necropsy or late in the course of the disease. Reversion or correction of diagnosis was made in 29 of the remaining 87 patients between 1946 and 1951, and in 26 of the 29 such corrections were obtained from biopsy of the lesion by direct surgical attack. Direct operation into the tuberculous focus in 24 patients treated with streptomycin in whom a draining sinus had not been produced, has proved a safe and satisfactory diagnostic procedure. Of 79 patients with tuberculous paraplegia, 59 were given conservative treatment, 13 were subjected to laminectomy, and 7 underwent direct operation into the spine lesion. Results suggested direct operative approach and evacuation of the paravertebral abscess to be the treatment of choice in tuberculous paraplegia.

Osteochondritis Dissecans in Children.—The occurrence of osteochondritis in 20 boys and 7 girls between the ages of 4 and 15 years is reported. Of the 27 patients, 8 had lesions in more than one joint; 32 knee joints, 3 elbow joints, and 1 ankle were involved. Of these 36 joints, 9 were treated by operative attack, 25 were treated conservatively, and 2 were untreated. In some of the 25 conservatively treated joints the protection of the joint was accomplished by the use of a Thomas patten-bottom brace, while a plaster leg cylinder was applied to other joints in this group; 18 of these joints were followed up for at least one year after treatment was terminated. Excellent results were obtained in 17, which were asymptomatic and appeared normal on physical and roentgenographic examination. All nine joints treated surgically were evaluated after an average period of seven years. Results were excellent in two and good in six, with essentially normal function and the patients having no complaint, but in some there were findings which would lead one to expect future difficulty. Of the patients with the untreated joints, one was observed periodically; it took about seven years for the lesions of the medial condyle to heal, which is quite in contrast with the time required for healing of those treated by protection. The authors' experience suggest, that osteochondritis dissecans is not uncommon in children and that when the lesion is protected, the process can heal quite promptly. This can occur even in the patients in whom there is apparent sequestrum formation within the cavity of the osteochondritic lesion. The histological evidence in the patients operated on would confirm the concept that the basic process in osteochondritis dissecans is an aseptic necrosis involving the subchondral bone and that all other changes are secondary. The cartilage in the beginning remains healthy, since it obtains its nutritional requirements from the synovial fluid. As dead bone is absorbed, the cartilage loses its mechanical support and varying degrees of softening and degenerative change may result. If the joint is protected, so that the cartilage does not become broken, the dead bone can be invaded and adsorbed, and the lesion can heal by "creeping substitution." Thus protection seems to be the treatment of choice in children, provided there is no loose body in the joint and provided the clinical manifestations subside quite promptly. Healing can go on spontaneously in joints which are not protected, but the time required is considerably longer than when the joint is protected. Treatment may be expected to lead to spontaneous healing without residual deformity. In the majority of cases surgical intervention is not indicated.

Intramedullary Fixation of Femoral Fractures.—In seven soldiers who had sustained compound fractures of the femur due to gunshot wounds in Korea, intramedullary fixation was used at the Oakland naval hospital. At the time of fixation some of the wounds were healed, some were open, others were obviously infected and draining, and some were accompanied

by major nerve damage. In the authors' series there were no deaths or no major loss of limb. Although the number of cases is small and the period of observation inadequate for final evaluation, the results so far have been encouraging. The nursing care of the patient has been greatly simplified and shortened by the use of intramedullary fixation. If this technique is to be used, all the basic principles of modern war surgery must be carefully adhered to. Sufficient initial débridement, good after-care, and the proper selection of the time interval for internal fixation will determine the outcome. It appeared best to correct the shortening before intramedullary nailing was attempted. If the shortening had not been overcome by the time the wound was cleaned, a secondary closure was done prior to the nailing and the traction increased. In those cases of compound fractures in which the femur was exposed, nailing was usually done through the open wound, while in those cases in which the soft-tissue wound was healed, the nailing was done through a posterolateral approach along the lateral intermuscular septum. The nails used were of the clover-leaf or Küntscher type. Intramedullary stabilization by itself cannot overcome infection in bone. However, immobilization of the fracture permits the return of bodily vigor and mental health and prevents complete disuse and atrophy of the limb. As a result, it enhances the healing of bone in the presence of infection. For infected wounds a 10% solution of urethane containing 1,000 units of penicillin per cubic centimeter was used and was found to be especially efficacious in cleaning necrotic wounds. The authors believe that if these wounds have not healed prior to surgery they should be left open and treated as open infected wounds. The presence of the metallic nail does not retard this healing but hastens it; the nail, therefore, should not be removed during the healing process unless it is clearly evident that it is poorly placed mechanically and is contributing to the persistence of the infection. This has not occurred in any cases observed by the authors. With proper selection of cases, adequate armamentarium, and properly trained surgeons, intramedullary fixation is feasible, and when compared with alternatives is safe.

Journal of Experimental Medicine, New York

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Id.: II. Disappearance of Pneumococci from Circulation in Relation to Bactericidal Action of Blood in Vitro. L. A. Gregg and O. H. Robertson.—p. 297.

Journal Nat. Cancer Inst., Washington, D. C.

13:773-1098 (Feb.) 1953. **Partial Index**

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Tumor-Damaging Capacity of Plant Materials: III. Plants Used as Pesticides. M. Belkin and D. B. Fitzgerald.—p. 889.
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Journal of Pediatrics, St. Louis

42:141-276 (Feb.) 1953. **Partial Index**

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*Deficient Prothrombin and Fibrinogen in Fatal Erythroblastosis Fetalis. W. G. Rice.—p. 231.
Mediastinal Lymphosarcoma in Infant: 12-Year Survival Following Radiation Therapy. M. H. Stich, J. Rubinstein, A. B. Friedman and M. Morrison.—p. 235.

Deficiency of Prothrombin and Fibrinogen in Erythroblastosis Fetalis.—A hemorrhagic state not infrequently complicates the severer types of hemolytic disease of the newborn (erythroblastosis fetalis). While attention has been focused on the antigen-antibody reaction, which is the basis of this disease, other severe manifestations such as hemorrhage have been largely neglected. These hemorrhagic manifestations are usually explained on the basis of increased fragility or permeability of capillaries or deficiency of circulating prothrombin activity, but proof has been generally lacking. Rice reports on a case in which death was due to intra-alveolar pulmonary hemorrhage. Prolonged fluidity of withdrawn venous blood was found to be associated with fibrinogen deficiency complicated in turn by a prothrombin deficiency. Rice points out that severe respiratory distress, blood-tinged bronchial secretions, and subepithelial petechiae were observed before the exchange transfusion. This indicates that hemorrhages had developed before the transfusion was commenced. It is possible that the transfusion of 70 ml. of blood and also the repeated changes of 20 ml. of blood during the exchange transfusion may have accelerated the hemorrhage by increase in pulmonary arterial tension. It is therefore of utmost importance in this disease that blood be injected slowly, so that the pulmonary circulation is not overloaded. As regards fibrinogen deficiency, it is pointed out that fibrinogen is synthesized in the liver, and that liver damage is an important facet of the pathology of hemolytic disease of the newborn. Prothrombin is also synthesized in the liver, and the deficiency detected in the present case may have been the result of the ineffective synthesis by the fetal liver. The deficiency was not, however, related to morphological damage to the hepatic parenchyma. The maternal serum at the time of delivery contained a high titer of Rh antibody.

Louisiana State Medical Society Journal, New Orleans

105:1-46 (Jan.) 1953

Maternal Mortality at Shreveport Charity Hospital. C. R. Mays, W. C. Ellis and F. A. Sewell.—p. 1.
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Dermoid Cyst of Ovary. H. W. K. Batson.—p. 32.

Amniotic Fluid Embolism.—Since 1941 when Steiner and Lushbaugh first described amniotic fluid embolism, 32 cases have been reported. To this number Dyer and associates add three more cases. When amniotic fluid embolism causes death, shock occurs during labor or immediately after delivery. The

patient has usually been in hard or sudden labor and shows signs of pain, restlessness, anxiety, and a feeling of impending disaster. Cyanosis and dyspnea are usually evident, and death may follow immediately. A tendency for profuse postpartum hemorrhage has been noted in several patients who have died from amniotic fluid embolism. The diagnosis of a nonfatal amniotic fluid embolism is difficult if not impossible. All substantiated cases have been diagnosed at autopsy or by the method of Gross and Benz, which is of particular use when autopsy has been refused. Blood is drawn from the right heart or vena cava post mortem, and is centrifuged. Instead of the buffy layer and clear layer above the cells, there are three layers. The middle layer can be fixed in block, and sections will show the presence of amniotic contents. In most cases there is either gross or microscopic evidence of amniotic emboli in the uterus, ovaries, and more particularly the lungs. The three cases presented caused 11.1% of the maternal mortality on the obstetric service at Charity Hospital in 1950-1951. It is felt that amniotic fluid embolism is a frequent cause of embolic death in obstetrics, but often remains unrecognized. There is no known method of prophylaxis or specific treatment of acute amniotic fluid embolism.

Maine Medical Association Journal, Portland

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Michigan State Medical Society Journal, Lansing

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New England Journal of Medicine, Boston

248:211-266 (Feb. 5) 1953

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Infectious Endocarditis as Result of Contamination During Cardiac Catheterization. P. Winchell.—p. 245.
Doctors Afield: Friedrich Schiller. R. W. Buck.—p. 246.

New York State Journal of Medicine, New York

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SYMPOSIUM ON ADRENAL GLAND IN RELATION TO UROLOGY

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*Rheumatic Heart Disease in Pregnancy: Immediate and Remote Prognosis. H. Gorenberg and L. C. Chesley.—p. 15.
Physiology of Ovarian Veins During Pregnancy. C. P. Hodgkinson.—p. 26.
Withdrawal Bleeding Following Oral Estrogen-Progesterone Administration. S. D. Soule.—p. 38.
Hemorrhage in Placenta Previa: New Concept of Its Mechanism. R. A. Bartholomew, E. D. Colvin, W. H. Grimes and others.—p. 41.
Maternal-Fetal Nutritional Relationships: Effect of Maternal Diet on Size and Content of Fetal Liver. C. A. Smith, J. Worcester and B. S. Burke.—p. 46.
Compound Presentation: Survey of 65 Cases. J. Goplerud and N. J. Eastman.—p. 59.
*Endometrial Carcinoma and Hepatic Cirrhosis. J. I. Brewer and T. J. Foley.—p. 67.
Electrophoretic Patterns of Plasma Proteins in Pregnancy: I. Pregnancy Complicated by Diabetes Mellitus. H. C. Mack, G. Thosteson, M. E. Wiseman and others.—p. 74.
Vaginal Hysterectomy: Indications, Advantages, and Surgical Technic. V. S. Counseller.—p. 84.
Leg Cramps in Pregnancy: Etiology and Treatment. E. W. Page and E. P. Page.—p. 94.

Rheumatic Heart Disease in Pregnancy.—While a diagnosis of heart disease should be made always with great caution, such caution is particularly important in pregnant women, because some features of pregnancy mimic cardiac, particularly mitral, disease (edema, systolic murmur, etc.). From a study of 345 pregnant women with rheumatic heart disease (old series) seen between 1933 and 1939 Gorenberg and Chesley concluded that such patients should have reduced physical activity and bed rest; weekly clinical check-ups; and immediate hospitalization if severe symptoms appear, if there is a history of cardiac failure, or if there is decreasing cardiac reserve. Cesarean section should be done for obstetric indications only. A second group of 157 consecutive patients (new series), who were observed between January, 1939, and August, 1942, were managed on the foregoing basic principles. It was found that competent management reduces the inroads made upon the cardiac reserve during pregnancy to the point where decompensation and death are rarities. Practically every pregnancy in a patient with rheumatic heart disease can be brought to a successful termination. Abortion is unnecessary and cesarean section is not indicated. To obtain information on the more remote prognosis, a follow-up study was made, in the course of which 260 women were examined from 9 to 14 years after delivery. This study led to the conclusion that pregnancy is a temporary complication of heart disease. There is nothing to suggest that the heart is damaged by childbearing, or that the course of the rheumatic process is thereby accelerated. Repeated pregnancies have not increased the annual death rates, despite the hazards of the pregnancies themselves.

Endometrial Carcinoma and Hepatic Cirrhosis.—Speert has concluded that there is an etiological relation between hepatic cirrhosis and carcinoma of the endometrium. His conclusion was based on three premises: 1. The normal liver metabolizes and converts estrogens to a less active form. 2. The liver when diseased fails to do this, and as a result there is a constantly higher concentration of a more active form of the hormone. 3. Estrogens can produce endometrial carcinoma. To verify the possible relationship between carcinoma of the endometrium and cirrhosis of the liver, Brewer and Foley review from the autopsy records of four hospitals all cases of primary endometrial carcinoma or cirrhosis of the liver in women. Cases of cardiac and biliary cirrhosis were excluded unless portal cirrhosis coexisted. The diagnosis of each case of carcinoma and each case of cirrhosis was made by histological study of the tissues. Thirty-four women with endometrial carcinoma were examined post mortem. None of these 34 had hepatic cirrhosis. This is in marked contrast to Speert's report in which he described hepatic cirrhosis in 4 of 12 women with endometrial carcinoma. The total number of women with hepatic cirrhosis that were autopsied was 144. None had endometrial carcinoma. Twenty-four had carcinomas of other organs. The sites of these carcinomas and the frequency of their occurrence is similar to that reported by Willis in a study of women with carcinoma in the general autopsy population. The authors feel that, even when their

figures were unduly weighted by adding to them the figures presented by Speert, the frequency of endometrial carcinoma in women with hepatic cirrhosis is the same as that observed in the general population. The credibility of the "estrogen-endometrial carcinoma" theory is thus diminished to a slight extent at least.

Ohio State Medical Journal, Columbus

49:93-180 (Feb.) 1953

Leukoplakia of Urinary Tract Treated by ACTH: Report of Case. I. Helfert and H. A. Bremen.—p. 109.
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Procedures for Treatment of Venereal Disease. F. O. Henker.—p. 115.
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Chronic Extradural Hemorrhage—Report of Two Cases. W. R. Chambers. —p. 123.

Plastic & Reconstructive Surgery, Baltimore

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Hemolytic Streptococcus Gangrene: Report of Seven Cases. W. L. White. —p. 1.
Study of Problem of Homografting by Means of Parabiosis in Rabbits. C. W. Monroe, R. H. Andresen and G. M. Hass.—p. 15.
*Case Report: Successful Homogenous Skin Graft in Severe Burn Using Identical Twin as Donor. S. E. Blandford Jr. and F. A. Garcia.—p. 31.
Developmental Pathology of Face and Dysraphic Syndrome—Essay of Interpretation Based on Experimentally Produced Congenital Defects. G. Sanvenero-Rosselli.—p. 36.
Effect of Injury Upon Growth and Some Comments on Surgical Treatment. B. G. Sarnat and P. W. Greeley.—p. 39.
Further Experience with Rectangular Flap Operation for Cleft Lip Repair. W. H. Steffensen.—p. 49.
Repair of Unilateral Cleft Lip—Advantages of Lemesurier Technique of Mucous Membrane Flaps in Maxillary Clefts. T. B. Bauer, H. M. Trusler and S. Glanz.—p. 56.

Identical Twin as Donor of Skin Graft for Severe Burn.—A 12-year-old boy was severely burned over 60% of his body surface when his gasoline-soaked clothing became ignited. The burn involved the full thickness of the skin over 40% of the body area and covered the anterior chest, abdomen, both axillae, and shoulder regions, both upper arms, the left forearm, the left thigh, flank, and lumbar regions. The boy was treated with pressure dressings, blood, plasma and other supportive measures, and transferred for skin grafting four weeks after the accident. Preparation for surgery was limited to the use of moist saline pressure dressings and blood transfusions. Skin for grafting was obtained from the patient's identical twin brother and from the patient's own thigh. Strips of intermediate split thickness skin were cut from the thigh, spread out on greased gauze, cut into rectangular stamp grafts, and applied only with pressure. The burned twin's skin was used on his arms and axillae; the donor twin's skin was used on all other areas. Healing was so rapid and complete that further surgery was not necessary. An attempt was made to determine any difference in the behavior of the grafts from the patient and those of the twin donor. None was noted. The rate of epithelial proliferation was identical—as was color, texture and contraction.

Proc. Staff Meet. Mayo Clinic, Rochester, Minn.

28:1-24 (Jan. 14) 1953

SYMPOSIUM ON THE APPENDIX AND ITS DISEASES

Present-Day Problems in Appendicitis from Internist's Viewpoint. L. A. Smith.—p. 1.
Current Trends in Emergency Surgical Treatment of Appendicitis. G. L. Jordan and G. A. Hallenbeck.—p. 5.
*Carcinoma of Appendix: Analysis of Series of Cases. J. R. Hilsabeck. —p. 11.
Carcinoma of Appendix: Comments on Pathology. L. B. Woolner. —p. 17.
Some Observations on Pressor Effect of an Oxytocic Agent Used Intravenously. R. L. Jackson and D. G. Decker.—p. 20.

Carcinoma of Appendix.—The present study was undertaken to obtain information on the spread of carcinoma of true appendiceal origin and to determine the criteria governing the choice of operation, that is, when to employ simple appendectomy, appendectomy with partial cecectomy, or radical right hemicolectomy. All cases of primary adenocarcinoma of the appendix encountered surgically at the clinic during the period Jan. 1, 1910, through Dec. 31, 1949, were reviewed and then divided into three types, according to the histological classification of Uihlein and McDonald. Lesions of the carcinoid type were then deleted from the study since almost all of them are cured by simple appendectomy. This left 29 cases of appendiceal carcinoma of the malignant mucocele type and 12 cases of the colonic type for further study. The clinical and surgical records were reviewed in these 41 cases, the specimens were examined, and follow-up letters were sent to those patients who had not been examined recently at the clinic. It was found that the majority of malignant mucoceles of the appendix, ruptured or intact, can be handled satisfactorily by appendectomy if nearby viscera are not involved by the mucocele. When the tumor protrudes into but does not involve the cecum, it may be easier technically to remove part of the cecum along with the appendix. Right hemicolectomy was performed in those instances in which it was impossible to determine the nature of the cecal lesion. This occurred when the tumor had perforated and when, in the process of walling off the pseudomyxomatous material, the cecum or terminal part of the ileum or both had become imbedded in the mass. When pseudomyxoma peritonaei is a sequel of rupture of the malignant mucocele, as much of the material as possible should be evacuated. The value of postoperative roentgen therapy remains a moot point. The prognosis for adenocarcinoma of the appendix of the colonic type that is limited to the appendix, confined to the mucosa, and treated by simple appendectomy is excellent. It is probable, though only one case is available to substantiate the idea, that prognosis for invasive lesions confined to the appendix would be less favorable even though right hemicolectomy were performed. Among appendiceal lesions the prognosis is poorest for those primary in the appendix that have spread and involved the cecum, since prognosis for them is the same as that for carcinoma of the cecum. The prognosis in cases of adenomatous polyps presenting malignant change also is excellent when the carcinoma is confined to the mucosa, but it seems wise to perform right hemicolectomy whenever the pedicle is involved.

Surgery, Gynecology and Obstetrics, Chicago

96:127-208 (Feb.) 1953

Relation Between Physiologic Stimulatory Mechanisms of Gastric Secretion and Incidence of Peptic Ulceration: Experimental Study Employing New Preparation. L. R. Sauvage, E. J. Schmitz, E. H. Storer and others.—p. 127.
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*Acute Hemorrhagic Pancreatitis: Report of 11 Consecutive Cases Treated with Human Serum Albumin. H. N. Kenwell and P. B. Wels.—p. 169.
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Effect of Endocrine Substances (ACTH and Growth Hormone) on Experimental Fractures. L. A. Shepanek.—p. 200.
Fracture Separation of Upper Humeral Epiphysis. C. C. Jeffery.—p. 205.
New Technique for Diagnosis of Carcinoma Metastatic to Liver: Preliminary Report. L. A. Stirrett, E. T. Yuhl and R. L. Libby.—p. 210.
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Prostatic Cancer. IV. Combined Surgical and Endocrine Management of Curable Lesions. P. B. Hudson.—p. 233.
Subcapsular Nephrectomy. J. C. Kimbrough and W. H. Morse.—p. 235.
Fractures of Both Bones of Forearm in Adults. C. H. Bradford, R. W. Adams and R. M. Kilfoyle.—p. 240.

Lumbar Sympathectomy in Peripheral Vascular Diseases.—This report evaluates the results of 221 lumbar sympathectomies in 159 male patients with disorders involving the vessels of the lower extremities. Lumbar sympathectomies were usu-

ally performed under spinal anesthesia. A transverse abdominal incision was made on either or both sides at the level of the umbilicus. The approach was extraperitoneal through a muscle-splitting incision. Usually the sympathetic ganglionated chain was removed from below the first lumbar ganglion to below the fourth. There were 49 patients with arteriosclerosis (including 20 diabetics), 10 with arterial emboli, aneurysm or thrombosis, 31 with thromboangiitis obliterans (Buerger's disease), 21 who had sustained vascular damage from freezing, immersion or causalgia, 23 with chronic thrombophlebitis, 11 with varicose or chronic leg ulcers, and 14 with unclassified peripheral vascular disease. The patients experienced relief of or diminution of pain, a warmer and dry extremity, reduction of edema, clearing of the cellulitis, arrest of gangrene, more rapid healing of the ulcer, and when amputation was required, it could usually be performed at a lower level. The stumps healed readily. In the entire series the results were considered good to excellent in 65% and fair in 28%, and poor in the remaining 7%. The most favorable results occurred in the patients with Buerger's disease, varicose or chronic leg ulcers, and freezing and immersion foot. Patients with arteriosclerotic disease of the peripheral vessels experienced considerable relief, and in many the operation obviated a major amputation for the time being. Patients with chronic thrombophlebitis, edema, chronic cellulitis, ulcer, and pain fared less favorably than any of the other groups, the incidence of good improvement being less than 40%. One of the authors believes that greater improvement could be realized in these patients, if lumbar sympathectomy were combined with ligation of a large venous channel above the site of thrombotic involvement.

Serum Albumin for Acute Hemorrhagic Pancreatitis.—Kenwell and Wels reviewed the cases of acute hemorrhagic pancreatitis seen at the Millard Fillmore Hospital since January, 1949. In the 19 cases treated between that date and June, 1951, and in whom the diagnoses had been confirmed by surgical observations and amylase studies, the therapy had consisted of procedures to combat shock, dehydration and electrolyte imbalance. Nasogastric suction, antibiotics, meperidine (demerol*), and glyceryl trinitrate were used in addition to surgery to counteract obstruction and establish drainage. In this group of 19 patients, 6 died. In the 11 cases treated since June, 1951, the authors used salt-free human serum albumin in addition to the aforementioned measures. In two of these cases laparotomy revealed a normal biliary tree, and no further surgical intervention was necessary. Cholecystectomy with choledochostomy was performed in five, because of the presence of cholecystitis and cholelithiasis. Cholecystostomies were performed in two patients with gangrenous gallbladders in whom resection was not feasible at the time. In two instances choledochostomies were performed because of apparently normal gallbladders and what appeared to be dilated common ducts; no stones were found. After operation serum albumin was administered intravenously in amounts of from 300 to 500 cc. daily for from three to five days. The albumin had a favorable effect on the disease. Whereas in the first group of 19 cases mortality had been high and recovery stormy, the 11 patients receiving serum albumin had a more rapid recovery, the hospital stay was cut from 17 days to 12 days, rectal temperatures returned to normal in 5.3 days as compared with the 8.9 days, and bowel movement or passage of flatus was noted in 4.2 days as contrasted with 6.4 days. The white cell blood count returned to normal in 5.4 days as against the average of 9.2 days in the first group. Serum albumin should be given with caution to patients with cardiac disease, since the hygroscopic action of the serum may produce cardiac decompensation with pulmonary edema. One such reaction was observed in this series. In order to substantiate their clinical impression of the efficacy of serum albumin, the authors produced acute pancreatitis in dogs by injecting into the accessory (Santorini's) duct a solution of trypsin and sodium taurocholate in sodium bicarbonate solution. These dogs died and necropsy revealed acute hemorrhagic pancreatitis. In two other dogs in which acute hemorrhagic pancreatitis had been produced a small quantity of canine serum albumin was used. Although no corrective surgical procedures were performed, the canine serum albumin produced satisfactory results.

U. S. Armed Forces Med. J., Washington, D. C.

4:157-310 (Feb.) 1953. **Partial Index**

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Simultaneous Perforated Appendicitis, Vivax Malaria, and Ascariasis. W. T. Smith and E. Larsen.—p. 309.

Virginia Medical Monthly, Richmond

80:67-126 (Feb.) 1953

Treatment of Leukemia and Lymphoma. C. L. Crockett Jr., D. Shotton and B. S. Leavell.—p. 69.
Experiences with Femoral Head Prosthesis in Reconstructive Surgery of the Hip. G. A. Duncan and G. G. Hollins.—p. 73.
*Tetralogy of Fallot—Diagnosis and Surgical Treatment. L. H. Bosher Jr., C. C. McCue, W. E. Pembleton and R. R. Porter.—p. 77.
Transorbital Lobotomy in Refractory Emotional and Mental Disorders—Report of 50 Lobotomies. E. J. Palmer.—p. 84.
Allergy: Attempt to Make this Protean Condition more Understandable to the Uninitiated. W. R. Graham.—p. 92.
End-Results in Operations for Fusion of Lower Spine. E. B. Carpenter and H. M. Kunkle.—p. 96.
Treatment of Coronary Artery Disease. N. Bloom.—p. 100.
Serologic Study of Serum from Suspected Cases of Infectious Mononucleosis. E. P. Foxhall.—p. 105.
Study of Intestinal Parasites at Western State Hospital. J. H. Furr, W. R. Whitehurst and H. G. Hansen.—p. 108.

Tetralogy of Fallot: Diagnosis and Surgical Treatment.—In children with tetralogy of Fallot cyanosis is visible in the nail beds and mucous membranes and may be intense, especially after exercise or crying. Attacks of dyspnea and fainting may be initiated by some minor incident, such as feeding, defecation, or crying. The child learns early that relief can be obtained by squatting. Clubbing is usually not prominent until after cyanosis is well developed. The small build of the child and the slow gain in weight roughly parallel the degree of arterial oxygen unsaturation. Polycythemia with red blood cell counts of from 6 to 12 million causes frequent thromboses. Without treatment the prognosis of tetralogy of Fallot is extremely poor, but surgical treatment should not be undertaken on children under 2 years of age. The mortality in this age group exceeds 25%, whereas a mortality under 10% may be anticipated in patients between the ages of three and twelve. The authors report on five patients who were operated on between the ages of 3 and 12 years. In all except one a shunt was produced between the subclavian and left pulmonary artery; in the exception, the shunt was made between the aorta and the left pulmonary artery. There were no deaths, and the clinical improvement has been gratifying. There is an increased quantity of oxygenated blood available, and, as a consequence, there is less disability and a greater tolerance for the activity, but a severe disturbance in the circulation still exists after operation. Only time will tell the ultimate benefits of this procedure. Life expectancy will probably be increased.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

104:81-260 (No. 2-3) 1952. **Partial Index**

Surgical Treatment of Thrombotic Obliteration of Aortic Bifurcation: Report of Case. C. Crafoord and T. Hiertonn.—p. 81.
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*Clinical and Myelographic Studies of Conservatively Treated Cases of Lumbar Intervertebral Disk Protrusion. A. Berg.—p. 124.
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Possibilities and Dangers in Modern Surgical Treatment of Visceral Carcinoma. J. Holst.—p. 162.
Treatment of Large Hernia with Whole-Skin Grafts. A. Homb.—p. 171.
Pernicious Anemia and Related Anemias Following Gastrectomy. G. Larsen.—p. 188.

Splenic Hemolytic Anemia.—Of 23 patients between the ages of 17 and 72 with various diseases of the blood such as lymphatic leukemia, chronic myelogenic leukemia, paramyeloblastic leukemia, Hodgkin's disease, myelofibrosis, aplastic anemia, Felty's syndrome, and reticulosis, 21 had anemia apparently due to increased destruction of the red blood cells by a pathological hemolytic mechanism. The length of life of transfused erythrocytes was determined by the differential agglutination method of Ashby. Curves plotting the length of life of the erythrocytes were mostly exponential, thus indicating that the transfused cells were destroyed at random. A distinct and occasionally pronounced shortening of the 50% erythrocyte survival time was demonstrated in all patients except two whose erythrocytes showed a normal 50% survival time, and two others in whom the 50% survival time was only slightly reduced. In all but two of the patients the spleen was enlarged, and in some to a considerable degree. No antibodies or hemolysins could be demonstrated by serologic methods. Jaundice could not be demonstrated in any of the patients. The decisive pathogenic factor seemed to be the enlarged and pathologically altered spleen. There was no significant increase in the number of reticulocytes, and in all 13 patients with leukemia as well as in 2 with Hodgkin's disease the erythropoiesis in the bone marrow was decreased. This reduced formation of red cells may have been due to "hypersplenism," but a reduced erythropoiesis caused by destruction of the erythropoietic tissue may also be considered. Of six patients on whom splenectomy was performed, one with previous cardiac infarction died of heart failure on the fourth postoperative day. Four of the remaining five patients were completely relieved by the splenectomy from the hemolytic mechanism, while in the fifth the hemolytic mechanism was considerably reduced. The term "splenic hemolytic anemia" has been suggested for the type of acquired hemolytic anemia observed in the author's patients.

Myelographic Evidence of Protruded Intervertebral Disk.—Clinical diagnosis of protruded intervertebral disk in three men between the ages of 42 and 44 was established by myelography. Spontaneous alleviation of symptoms or symptomatic improvement after conservative treatment was observed despite persisting myelographic evidence of the lesions. As result of this experience, the author states that the symptoms of protruded, intervertebral disk are related to the inflammatory secondary changes around the nerve roots taking the appearance of edema of the roots in the myelogram, rather than to the lesion of the disk itself. Repeated myelographic studies after effective conservative treatment demonstrated the disappearance of the root edema and the persistence of a distinct anterolateral impression of the dural sac with considerable dislocation of the lumbar root. The author consequently does not share the widely accepted view that spontaneous improvement or improvement following conservative therapy in cases with myelographic evidence of protruded intervertebral disk depends on a retraction of the extruded nucleus pulposus from the spinal canal. The effect of conservative treatment such as rest in bed is related mainly to the effect of adequate immobilization of the affected part of the spine. It is therefore concluded that fusion of the lumbosacral spine is an essential part of the operation when surgical treatment is practiced in cases of protruded intervertebral disk. Considerable changes may occur in the spinal canal following the extirpation of the protruded disk, which may greatly resemble those contributing to the symptoms of protruded intervertebral disk. They may be considered a result of hemorrhage with subsequent cicatrization and formation of adhesions, i. e., as chronic inflammatory changes. Such changes obviously can be controlled by adequate immobilization, i. e., by fusion.

Electrolyte Imbalance Following Ureterointestinal Anastomosis.—The blood electrolyte patterns of 31 patients in whom ureterointestinal anastomosis had been carried out partly according to the Coffey 1 method and partly to Nesbit or Cordonnier's mucosa-to-mucosa technique, were studied one month to three years after the surgical intervention. All patients showed derangement of the blood electrolytes of varying degree that appeared at various time after the operation. The electrolyte changes were associated with polyuria and polydipsia, to which later were added other complaints, primarily in connection with an increased acidosis and hyperchloremia. Electrolyte changes varied not only in different patients, but also in the same patient on different occasions dependent on fluid supply and frequency of evacuations. A measured supply of fluid was able to disguise the acidosis and hyperchloremia to a certain degree. The cause of the electrolyte disturbance is considered to be renal parenchymal damage, particularly of the tubules, as a result of pressure transmitted from the intestine through the ureter to the kidney. The increased intrapelvic and intratubular pressure lead to a fall in glomerular filtration rate, which causes a diminution of excretion of chloride and sodium. The chloride retention may to a certain extent be disguised by a sufficient fluid ingestion. The tubular damage probably causes a disturbance of the carbonic anhydrase mechanism and the reabsorption of water in the distal tubules. The alkaline urine usually found in these patients may be due to defective absorption of bicarbonate in the proximal tubules. The increased phosphate excretion and the hypophosphatemia may be related to this defective bicarbonate absorption. An occasional infection increases rapidly the damage inflicted on the kidney, whereby the clinical aspect appears to change to that of chronic pyelonephritis. The damage to the kidney caused by the pressure is reversible to a certain degree. This becomes evident after the insertion of a rectal tube. There is some parallelism between electrolyte disturbance and dilatation of the upper urinary tract; thus a slight dilatation usually is followed by slight electrolyte changes. The possibility of a selective chloride reabsorption from the colon has never been proved, and it is believed to play no significant part in the developing of the electrolyte imbalance following ureterointestinal anastomosis. A chloride absorption from the colon could be thought to occur in a certain degree in the form of a diffusion. As the urine, however, in the authors' patients had a considerable lower chloride concentration than plasma, such a diffusion must be thought unlikely. Intestinal reflux was observed in all patients operated on by the mucosa-to-mucosa methods, and grave electrolyte aberrations appeared shortly after the operation in most of these patients. It would seem that these methods offer less protection against kidney damage because of the absence of a valve mechanism.

British Journal of Radiology, London

26:1-56 (Jan.) 1953. **Partial Index**

Benign Tumours of Stomach. R. I. Roberts.—p. 3.
Pathology of Benign Polypoid Gastric Tumours. H. G. H. Richards. —p. 12.
*Osteitis Condensans. H. W. Gillespie and G. Lloyd-Roberts.—p. 16.
Small-Volume, High-Dose Technique for X-Ray Treatment of Some Brain Tumours. J. G. de Winter.—p. 22.

Osteitis Condensans.—Radiological evidence of osteitis condensans is comparatively frequent, having been found in 2.2% of 760 lumbosacral spines. It is characterized by a unilateral or bilateral area of osteosclerosis close to the sacroiliac joints.

The osteosclerosis is homogeneous and fairly sharply defined from the surrounding normal bone. Occasionally it is limited to the iliac side of the joint, but the authors feel that the term osteitis condensans ilii is not accurate and should be replaced by the wider term osteitis condensans, because in many instances the sacrum is likewise involved. Furthermore, in some cases localized osteitis condensans is found also around the pubic symphysis. Although osteitis condensans presents characteristic radiological features, the differential diagnosis may be difficult, because osteosclerosis is found in many bone diseases. Osteitis condensans is characterized by a more homogeneous sclerosis than is found, for instance, in ankylosing spondylitis. The most important differential aid is that osteitis normally does not involve the adjacent joint. The joint surface remains smooth, whereas in tuberculous, staphylococcal, or rheumatoid sacroiliitis the joint shows erosion or ankylosis. The pathogenesis of osteitis condensans remains obscure, but detailed investigations on 21 patients convinced the authors that it is confined to women who have borne children, but multiparity, difficult labors, and puerperal complications do not seem to be predisposing factors. Furthermore, there were no changes in the blood chemistry of the patients studied. The macroscopic and microscopic aspect of a piece of bone removed from an osteitis condensans lesion are described. The authors feel that vascular deficiency plays a part in the pathogenesis. Although earlier investigators had assumed a connection between osteitis condensans and pain in the low back, Gillespie and Lloyd-Roberts were doubtful about this and examined their patients at short intervals. They believe that osteitis condensans is evidence of an old trauma, frequently associated with disk lesions. The intermittent low back pain complained of by patients with osteitis condensans cannot be separated from that felt by many multiparous women without osteitis condensans. If the backache is severe, it is unlikely that osteitis condensans is the only cause, and the cause of the pain should be sought elsewhere.

British Journal of Urology, Edinburgh

24:257-356 (Dec.) 1952

Late Results of Ureterocolic Anastomosis. A. Jacobs and W. B. Stirling. —p. 259.
Chemical Imbalance Following Ureterocolic Anastomosis. F. M. Parsons, L. N. Pyrah, F. J. N. Powell and others.—p. 317.
Vascularisation and Healing of Transplanted Ureter in Dogs. R. Shackman, O. Daniel and B. Lennox.—p. 323.
Blood Supply of Human Ureter in Relation to Ureterocolic Anastomosis. O. Daniel and R. Shackman.—p. 334.
Mucosal Changes in Relation to Bladder Tumours. F. Masina.—p. 344.

British Medical Journal, London

1:233-286 (Jan. 31) 1953

*Subdural Effusions in Infancy: 24 Cases. A. N. Guthkelch.—p. 233.
Treatment of Steatorrhoea in Crohn's Disease. J. Burke.—p. 239.
New Long-Acting Insulin: Preliminary Trial of "Lente" Novo Insulin. R. D. Lawrence and W. Oakley.—p. 242.
Acute Benign Pericarditis: Report of Four Cases in Childhood. B. D. Bower, J. Gerrard and M. E. MacGregor.—p. 244.
Investigation into Sterility After Lumbar Ganglionectomy. S. S. Rose. —p. 247.
*Combined Use of Hexamethonium Bromide and Procaine Amide in Controlled Hypotension: Preliminary Report. A. A. Mason and J. F. Pelmore.—p. 250.
Treatment of Acute Malaria with Pyrimethamine. T. Wilson and J. F. B. Edeson.—p. 253.
Use of Local Analgesia in Septic-Finger Surgery at Teaching Hospital. P. E. B. Holmes and D. J. C. Graff.—p. 255.
Some Aspects of Catheterization in Retention of Urine. J. A. L. Davies. —p. 257.

Subdural Effusions in Infancy.—The occurrence of subdural hematoma in 15 boys and 3 girls between the ages of 1 day and 12 months, that of subdural effusion complicating purulent meningitis in 3 girls and 2 boys between the ages of 4 months and 12 years, and that of subdural effusion in a 4-month-old girl with sagittal sinus thrombosis is reported. Convulsions, vomiting, and irritability are the commonest symptoms of infantile subdural hematoma. Of the author's 18 patients, 9 showed a significant degree of enlargement of the head; one who had been neglected was inoperable and in another craniotomy was advised but refused. In the remaining 16 patients subdural paracentesis was performed for 10 to 14 days, resulting in dramatic improvement in the infants' conditions. Craniotomy was required in 12 patients (including 10 bilateral cases) in whom exploration of the subdural space after the dura mater had been opened revealed that a membrane already surrounded the hematoma, which must be removed to prevent arrest of the important growth of the brain during the first two years of childhood. There was one operative death, which was due to an error of judgment in failing to make an immediate blood transfusion. Of the 15 survivors, 8 are developing normally, the eldest being now at school, and 2 more are well, though their follow-up is too short to have significance. There is reason to suppose that 10 or possibly 11 (nearly 70%) of the 16 patients will grow up normally. Of the five patients with purulent meningitis associated with subdural effusion very similar to that observed in subdural hematoma, two had only a very thin membrane around the effusion, while the membranes in the other three required craniotomy. Of the first two patients, one has been followed for two and a half years and is developing normally; the other seems well but has not been observed long enough for evaluation. Of the three patients subjected to craniotomy, one continued to have convulsions and died one year after the operation; one of the remaining two had been followed for six months and seems to be well, while the other who had been followed for two years shows behavior disturbances. As a result of reviewing the literature, the author feels that with early diagnosis the results obtained in subdural effusion associated with purulent meningitis may approach those obtained in infantile subdural hematoma. Subdural paracentesis did not improve the condition of the infant with sagittal sinus thrombosis and subdural effusion, and the patient died within 48 hours. The findings in this case and in those of other workers suggest that certain types of subdural effusion associated with intracranial venous thrombosis complicating any infective focus may be due to a leakage of blood from the necrotic walls of veins crossing the subdural space.

Procaine Amide and Hexamethonium in Controlled Hypotension.—In patients of the younger age group hexamethonium bromide has not been of itself wholly satisfactory in producing a blood pressure low enough to achieve the required ischemia for relatively "bloodless field" surgery. The blood pressure levels in 50 unselected surgical patients who were given hexamethonium bromide alone were compared with the levels achieved in a group of 50 patients who were given hexamethonium bromide after previous administration of 1 gm. of procaine amide hydrochloride. A blood pressure fall to below 60 mm. Hg occurred in 13 patients in the first group and 30 patients in the second group. The dose of hexamethonium bromide required to produce a similar fall in blood pressure was reduced from 90 mg. to 65 mg. after the administration of procaine amide hydrochloride. Hexamethonium bromide and procaine amide hydrochloride thus showed a true potentiation of each other's hypotensive effects. An additional 17 patients between the ages of 10 and 46 in whom the use of hexamethonium bromide alone had failed to produce adequate ischemia were subsequently treated with 1 gm. of procaine amide hydrochloride. In all except one of these patients a satisfactory operative blood pressure level was obtained. Toxic effects of the drug were not observed in any patient, and the fall in blood pressure was not so severe as to cause concern. Two illustrative cases, one of a 10-year-old boy operated on for a neurofibroma of the orbit and the other of an 18-year-old girl operated on for nasal reduction, are reported in detail. On the administration of hexamethonium bromide the pulse rate rose and the fall in blood pressure was only slight. The subsequent injection of procaine amide hydrochloride caused both the blood pressure and the pulse rate to drop. It seems highly probable that the main action of the procaine amide hydrochloride is on the pulse rate and that the fall in blood pressure is secondary and due to the prevention of this tachycardia. Thirteen of the 17 patients were less than 30 years of age. It may be anticipated that procaine amide will be required oftenest in this age group.

Bull. World Health Organ., Geneva

7:231-370 (No. 3) 1952

Plague Studies: 7. Insect Vectors. R. Pollitzer.—p. 231.
Period of Excretion of Vibrio Cholerae in Convalescents. C. C. B. Gilmour.—p. 343.
Cholera Medium with More than Tenfold Yield. W. Koch and D. Kaplan.—p. 353.
Note on Incidence and Epidemiological Importance of Cholera Carriers. R. Pollitzer.—p. 359.
*Value of Bandi's Test in Rapid Diagnosis of Cholera. S. C. Ghosal and B. M. Paul.—p. 371.

Diagnosis of Cholera.—Bandi's test, which is based on the agglutination of Vibrio organisms by a high-titer cholera O serum diluted in peptone water at a pH of 8.2, was first described and recommended for the rapid diagnosis of cholera in 1910. Since it is still being advocated, Ghosal and Paul decided to compare it with the method they have been using, and which consists of culture on a modified Wilson and Reilly medium, and on bile-salt agar. They found that the Bandi test gave up to 38% less positive results than the plate tests. In the experimental part of their work the authors added Bacterium coli and Bact. aerogenes in an increasing ratio to the cholera vibrios. They noted that the results of Bandi's test became less and less accurate as the proportion of vibrios to the other organisms decreased. When the ratio of vibrios reached 1:4, the results became irregular; when it decreased further, they were negative; a pH of 9.2 did not affect this trend. The authors conclude that in practice the test is useful for diagnosis when there is a preponderance of vibrios, but that it is not sufficiently reliable when other organisms predominate.

Deutsche medizinische Wochenschrift, Stuttgart

78:181-212 (Feb. 6) 1953. **Partial Index**

Treatment of Rheumatic and Asthmatic Conditions by Varied Vibrations; Experimental Study of Mechanism of Its Effect. L. Heilmeyer, W. Keiderling and F. Wöhler.—p. 181.
*Problematic Character of Surgical Measures in Hypoglycemia Due to Tumor or So-Called Hyperplasia of Islet Cells Apparatus. K. Voszschulte and W. H. Becker.—p. 185.
Severe Disease of Skin and Muscles Clinically Resembling Dermatomyositis with Demonstration of Coxsackie Virus in Feces. E. Zweymüller.—p. 190.

Surgical Measures in Hypoglycemia.—In 38% of 315 cases of spontaneous hypoglycemia collected from the literature, an insuloma could not be detected by palpation of the exposed pancreas. In cases of this type the surgeon must first make sure that there is no dystopic adenoma, although this occurs rarely. In 18% of the reported cases an insuloma was removed by blind resection of the tail of the pancreas and a portion of the body of the organ or by repeated resections of the body of the pancreas in second or third stage procedures. As a result of these experiences, a subtotal pancreatectomy including the tail and the entire body of the pancreas seems advisable in those cases in which a diagnosis of organic hyperinsulinism is warranted and in which an adenoma cannot be demonstrated on palpation of the pancreas. A partial resection of the tail of the pancreas is not advisable, because the detection of an adenoma in this portion of the organ does not exclude the presence of additional nodules in other portions. A more extensive excision is not more damaging or technically more difficult than a less extensive one. Even in cases of so-called hyperplasia of the pancreas, subtotal pancreatectomy is to be considered more promising than a less extensive resection. The authors report the occurrence of an insuloma in the head of the pancreas in a 50-year-old woman. A short remission of the hypoglycemia resulted from partial resection of the body of the pancreas, but the patient soon became worse and repeated attacks of hypoglycemia required the ingestion of carbohydrates even during the night. On repeated laparotomy, palpation of the head and the small portion of the body that had remained after the first intervention did not reveal the presence of an adenoma; a duodenopancreatectomy was performed and microscopic examination of the head of the pancreas revealed a cherry-sized adenoma. A small number of alpha cells were observed in the marginal portions of the tumor. There was pronounced hyperemia of the capillaries associated with extravasation of blood. Microscopic differentiation between insuloma and hyperplasia of the pancreas is feasible, but there is no rapid staining method available by which this differentiation can be done. Total pancreatectomy must therefore be limited to cases like the one reported by the authors in which the adenoma is situated in the most anterior portion of the head of the pancreas and consequently can be removed only if the entire organ is removed. Cases of this type are rare.

Die Medizinische, Stuttgart

No. 5:139-174 (Jan. 31) 1953. **Partial Index**

Recent Addition to Knowledge of Pathologic Anatomy of Pancreas. W. Doerr.—p. 139.
Disturbances in Nail Growth After Injuries. H. R. Schönbauer.—p. 143.
*Demonstrability, Viability, and Life Span of Transfused Leukocytes. A. Adorf.—p. 145.
Iron Lung or Electric Lung in Treatment of Respiratory Disturbances. W. Bolt, H. Valentin and H. Venrath.—p. 147.
Androgenic Therapy of Leukorrhea. L. Herold and G. Lösche.—p. 152.

Viability and Life Span of Transfused Leukocytes.—Ordinarily transfused leukocytes cannot be identified and demonstrated in the blood of the recipient, because they cannot be differentiated from the recipient's own leukocytes, unless his blood is devoid of a certain type of cell, such as granulocytes. Atypical leukocytes from a patient with Pelger-Huet's nuclear anomaly, however, can be distinguished from normal leukocytes after transfusion. The granulocytes in this condition are almost exclusively staff cells and cells with two-segmented nuclei. Furthermore, the nuclear structure of the Pelger cells is dense and pyknotic and the chromatin appears lumpy. Taking advantage of this fact, Adorf performed three direct transfusions of 420 cc. each involving such cells. First, group A blood with Pelger-Huet's anomaly was given to a patient with normal group A blood. Then, on two different days, transfusions of group O blood were given to the patient with Pelger-Huet's nuclear anomaly. At certain intervals after these transfusions blood smears were made from the capillary blood of the recipient, and 1,000 neutrophil granulocytes were counted. The morphological differences in the foreign cells facilitated their identification. The studies revealed that the transfused leukocytes, at least some of them, reach the peripheral (capillary) blood. It was proved by phagocytosis experiments that the transfused granulocytes retain their functional capacity in the blood stream of the recipient. The fairly uniform disappearance of the transfused cells from the peripheral blood suggests a biological decomposition. The transfused granulocytes survived at the most for 48 hours. The intercepting function of the lung seems to explain the rapid disappearance of the largest part of the transfused granulocytes from the peripheral blood during the first few hours after the transfusion.

Edinburgh Medical Journal

60:65-112 (Feb.) 1953

William Harvey and the Early Days of Blood Transfusion. J. M. Graham.—p. 65.
The Bronchus—Clue to Pathogenesis and Treatment of Pulmonary Tuberculosis? F. H. Young.—p. 77.
Review of Leukaemia in Aberdeen 1939-1951. W. R. Gauld.—p. 95.

Journal de Chirurgie, Paris

69:1-100 (Jan.) 1953

Radiological Anatomy of Intrahepatic Biliary Passages. M. Roux, E. Bernier, C. Debay and others.—p. 5.
*Renal Endometriosis, A New Anatomical and Clinical Entity. Symptoms and Pathogenesis. E. Blum and L. Fruhling.—p. 19.

Renal Endometriosis.—Renal endometriosis is a comparatively newly described and rare entity. The first case was reported in 1943 and the second in 1950; two more have now been seen. The patients were from 22 to 42 years of age, and the symptoms they presented were a painful swelling of the kidney with albuminuria, hematuria, or lumbar pain in rhythm with the menstrual cycle. One patient later had pelvic endometriosis, but no signs of any localization other than renal were found in the other three. Intravenous urography showed either blurring of the pelvis and calyces, or impaired secretion, or a completely excluded kidney. Pyelography defined the lesion by revealing gross pyelocalyceal deformation, cystic de-

formation of an upper calyx, or even renal atrophy. A coexisting advanced chronic ascending nephritis was found in two cases. Nephrectomy was performed in all four cases and resulted in cure. The precise diagnosis was established by histological examination of the excised kidneys. Renal endometriosis should be considered whenever a cystic tumor of the kidney occurs in a premenopausal patient; if the lesion is recognized in time, total nephrectomy, which would otherwise be necessary, may be avoided, only the diseased tissue being removed at operation. Lumbar pain in rhythm with the menstrual cycle accompanied by renal atrophy should also suggest renal endometriosis. The atrophic condition upon which the endometrial lesions are superimposed usually results from a chronic ascending nephritis; if functional tests disclose partial or complete exclusion of the kidney, total nephrectomy will be required. The authors believe that renal endometriosis is a form of metaplasia in situ, produced by a twofold process: metaplasia of adult renal tubes into glandular tubes (after their dedifferentiation into anaplastic tubes), and the building up of a cytogenic stroma and smooth muscle by organoid adaptation of the ordinary connective tissue of the kidney. This tissular and cellular dedifferentiation is favored by the existence of an inflammatory factor (chronic ascending nephritis) and a particular type of endocrine terrain.

Journal of Endocrinology, London

9:1-126 (Jan.) 1953. **Partial Index**

Excretion of Dehydroisoandrosterone and Some of Its Derivatives by Healthy Subjects. B. M. Bray and W. H. H. Merivale.—p. 1.
Sympathetico-Adrenal Inhibition of Neurohypophysial Milk-Ejection Mechanism. B. A. Cross.—p. 7.
Influence of Oestrone on Division of Cells. S. B. Carter.—p. 19.
Some Dietary and Hormonal Effects on Maternal, Foetal and Placental Weights in the Rat. R. M. Campbell, I. R. Innes and H. W. Kosterlitz. —p. 68.
Effect of "Agene-Induced" Convulsions on Adrenal Steroid Excretion in Normal and Castrate Dogs. P. J. Costa and D. D. Bonnycastle.—p. 76.
Effect of N-Butyl-3:5-Diiodo-4Hydroxybenzoate on Uptake of ^{131}I by Mouse Thyroid. M. K. Brayne and N. F. Maclagan.—p. 90.
Species Differences in Adrenocortical Secretion. I. E. Bush.—p. 95.
Behaviour of Skin Autografts and Skin Homografts in Guinea-Pig, with Special Reference to Effect of Cortisone Acetate and Ascorbic Acid on Homo-Graft Reaction. E. M. Sparrow.—p. 101.

Journal de Médecine de Lyon

34:37-70 (Jan. 20) 1953

Comparative Value of Crystalline Suspensions and Implantations of Pellets in Hormone Therapy. Plauchu and Pommatau.—p. 37.
*Present Prognosis of Pulmonary Tuberculosis in Pregnant Women. L. Meyer, K. Tékinay and M. Durand.—p. 47.

Prognosis of Pulmonary Tuberculosis in Pregnant Women.—Between 1942 and 1952, 1,918 women with pulmonary tuberculosis were treated at a sanatorium situated in the plain. In 72 (3.7%) of the 1,918 patients, the tuberculosis was associated with pregnancy. Of the 72, 41 were at the sanatorium for the entire period of their pregnancy, 23 during the postpartum period only and 8 following abortion. Treatment with streptomycin was started in 1948. Of the 72 women, 25 were treated before 1948 and 6 of them died (a mortality rate of 24%), while 47 were treated after 1948 and 1 of them died (a mortality rate of 2%). Of the 41 pregnant women who were in the sanatorium during their entire pregnancy, 15 were treated before 1948 and 2 of them died, while 26 were treated after 1948 and not one of them died. This significant decrease in the mortality rate was achieved by rigorous sanatorium treatment associated with strict medical and surgical collapse therapy. Prognosis is usually unfavorable in women with pulmonary tuberculosis who are admitted to the sanatorium during the postpartum period or after abortion; 5 (50%) of 10 admitted before 1948 died, and 1 (5%) of 21 admitted after 1948 died. Of the 41 pregnant women who were treated at the sanatorium for the entire period of their pregnancies, 10 left after delivery, while 31 remained for continued treatment. Despite all methods of treatment employed, a progressive course of the disease occurred in six patients (18%). Of 44 children born, 39 survived. Not one of the children followed up for two years had a toxic disorder that could have been attributed to the use of streptomycin. The occurrence of pregnancy in a woman with chronic or acute tuberculosis should always be considered serious. Early diagnosis of both pregnancy and tuberculosis makes adequate management possible with the least delay. If there is a definite possibility of controlling the tuberculosis, pregnancy may be allowed to continue to term. If this is not the case, one should not hesitate to induce therapeutic abortion. The indications for the latter procedure are respiratory insufficiency after collapse therapy (particularly bilateral) or extensive old lesions that can not be expected to respond to collapse therapy or antibiotic treatment; multiple visceral lesions, particularly pulmonary tuberculosis associated with renal tuberculosis, tuberculous meningitis, or disease of the right side of the heart. Certain obstetric circumstances may prevail to induce abortion or to shorten the fatigue of labor by forceps or by cesarean section.

Journal of Mental Science, London

99:1-190 (Jan.) 1953. **Partial Index**

"Reflections on Genius." T. Tennent.—p. 1.
Genetic Investigations in Twins. E. Slater.—p. 44.
Comparison of Personality Changes After (1) Prefrontal Selective Surgery for Relief of Intractable Pain and for the Treatment of Mental Cases; (2) Cingulectomy and Topectomy. J. Le Beau and A. Petrie.—p. 53.
Psychosomatic Aspects of Premenstrual Tension Syndrome. L. Rees. —p. 62.
Gargoylism (Hurler's Disease): Neuropathological Report. D. Naidoo. —p. 74.
Occupational Psychiatry: An Historical Survey and Some Recent Researches. M. Markowe.—p. 92.
Use of Electroplexy in Mental Disease with Clouding of Consciousness. M. Roth and J. M. Rosie.—p. 103.
*Electrical Termination of Hypoglycaemic Coma. J. D. Montagu.—p. 112.
Special Mental Hospital Unit for Treatment of Psychosis and Neurosis in Juveniles. D. E. Sands.—p. 123.
Human Behaviour Reactions to Organic Cerebral Disease. M. Reinhold. —p. 130.
Acute Porphyria Presenting with Mental Symptoms. E. H. Hare.—p. 144.
Routine Use of Muscular Relaxants Prior to Electrical Convulsive Therapy. J. A. Ardis and A. M. Wyllie.—p. 148.

Electrical Termination of Hypoglycemic Coma.—The subjects of this investigation were 14 schizophrenic patients selected at random from those receiving insulin-coma therapy. Cerebral electrostimulation of subconvulsive intensity was applied to these patients during their hypoglycemic coma. The current employed was composed of brief, unidirectional "square waves" and is described in detail. The transcerebral stimulation frequently roused the patient from coma, but the final outcome still depended upon the administration of glucose. Transcerebral stimulation caused a rapid and transient rise of the blood-sugar level, which was correlated with the clinical response in time and intensity. This increase in the blood-sugar concentration is largely attributable to a direct action of the current on the brain centers, since it was significantly lower when the central passage of the current was reduced by unilateral application of the electrodes. The results obtained are similar to those that have been reported following the injection of glutamic acid and of epinephrine during hypoglycemic coma. One case of "irreversible" coma was treated by electrostimulation in the presence of hyperglycemia and was not roused by the current. Therefore, the value of subconvulsive electrostimulation in "irreversible" coma will require further study. The author is of the opinion that the clinical effects of electrostimulation are primarily attributable to rise in blood sugar concentration.

Journal Neurol., Neurosurg. & Psychiatry, London

16:1-58 (Feb.) 1953

Aphasia. C. Symonds.—p. 1.
Effects of Methedrine and of Lysergic Acid Diethylamide on Mental Processes and on Blood Adrenaline Level. D. W. Liddell and H. Weil-Malherbe.—p. 7.
Investigation of Amnesic Defects by Progressive Prompting. M. Williams. —p. 14.
Paraesthesiae Induced by Cold. J. Marshall.—p. 19.
Affective Epilepsy. L. van der Horst.—p. 25.
Epileptic Threshold in Schizophrenia. J. Hoenig and D. M. Leiberman. —p. 30.
Disturbances of Oculomotor Function Accompanying Extradural Haemorrhage. S. Sunderland and K. C. Bradley.—p. 35.
Intra-Arterial Injection of Neostigmine as Diagnostic Test in Myasthenia Gravis. E. C. Hutchinson and W. B. Matthews.—p. 47.
Neurological Aspects of Dermatomyositis. W. B. Matthews and J. C. Burne.—p. 49.

Lancet, London

1:203-252 (Jan. 31) 1953

Pituitary Insufficiency in Women: Clinical Study of Seven Cases. L. A. Wilson.—p. 203.
Myleran in Chronic Myeloid Leukaemia: Chemical Constitution and Biological Action. A. Haddow and G. M. Timmis.—p. 207.
Id.: Results of Treatment. D. A. G. Galton.—p. 208.
Difficult Delusions. I. Atkin.—p. 213.
Improved Storage of Red Cells at —20 C. H. Chaplin Jr. and P. L. Mollison.—p. 215.
Removal of Glycerol from Previously Frozen Red Cells: Modified Method. H. Chaplin Jr. and N. Veall.—p. 218.
Controlled Hypotension by Thiophanium Derivative. I. W. Magill, C. F. Scurr and J. B. Wyman.—p. 219.
Streptokinase and Streptodornase in Treatment of Surgical Infections. J. M. Miller, B. H. White and P. H. Long.—p. 220.
Phenylbutazone (Butazolidine) in Treatment of Chronic Arthritis. L. Cudkowicz and J. H. Jacobs.—p. 223.

Laval Médical, Quebec

18:1-144 (Jan.) 1953. **Partial Index**

Contribution to Study of Rotatory Epilepsy. C.-A. Gauthier and C. Bélanger.—p. 12.
Chronic Otitis. R. Lavoie.—p. 22.
Foreign Body in Left Maxillary Sinus. P. Larochelle and E. Maranda.—p. 31.
*Observations Based on 44 Cases Operated on for Mitral Stenosis. P. David, E.-D. Gagnon and O. Gialloretto.—p. 59.

Report on Forty-Four Patients Operated on for Mitral Stenosis.—Pure mitral stenosis may be well tolerated for a long time; consequently, mitral commissurotomy should not be undertaken merely as a prophylactic measure. It may be advised whenever a patient is incapacitated by his lesion. Significant cardiac enlargement and frank signs of right ventricular insufficiency, however, probably indicate that the patient has passed the stage at which the operation may be beneficial, and organic mitral insufficiency is a definite contraindication to commissurotomy. Mitral stenosis is always more frequent in women than in men; 27 of the 44 patients in this series were women. All but four of the patients had incapacitating dyspnea, which made life almost intolerable. Fatigue was a dominant symptom in 35, and 35 suffered from hemoptysis. Most of the patients were underweight; in the six months following the operation they gained from 10 to 20 lb. (4.5 to 9.9 kg.). There were seven deaths; four of these could probably be prevented now, as a result of increased experience. Marked improvement (exceeding 50%) was secured in 29 patients. Six were improved, and two were classed as failures, one because the cardiac damage caused by a rheumatic attack cannot yet be evaluated, and the other because an embolism has left the patient hemiplegic, although the effect of the operation on the heart, which was excellent, has not been compromised. Follow-up of the first nine patients, which now exceeds one year, shows that fatigue and dyspnea have disappeared almost completely, enabling them to resume virtually normal living.

Lille Chirurgical

7:1-50 (Jan.-Feb.) 1953. **Partial Index**

*Tumors of Upper Pole of Stomach. E. Delannoy, P. Gautier, A. Soulier and A. Tacquet.—p. 9.
Strangulated Diaphragmatic Hernia Cured by Combined Thoracic and Abdominal Procedure. G. Lagache, J. Dewambez and G. Lemaitre.—p. 27.
Case of Costal Osteomyelitis of Staphylococcic Origin. P. Gautier and A. Soulier.—p. 30.
Giant-Cell Thyroiditis. E. Delannoy, J. Driessens and A. Clay.—p. 33.

Cancer of Upper Pole of Stomach.—Study of 22 patients with cancer of the upper pole of the stomach shows that epigastric pain of the ulcer type was the most frequent early symptom, occurring in 50% of the cases; dysphagia and loss of weight, though less frequent in the beginning, occurred regularly later on. Radiological signs of cancer of the upper pole consist of shadows, niches, and deformations of the esophagus. The cancer is usually visible on standard films, but often remains unrecognized because the radiologist's attention is not directed toward the upper pole. Early detection can best be assured by taking serial radiographs of this area and by scrutinizing it as carefully as the antropyloroduodenal area. Experience indicates that total gastrectomy with splenectomy and resection of the tail of the pancreas is the treatment of choice. The best access is secured by the combined abdominothoracic route. Useless thoracotomy is avoided by beginning with an oblique laparotomy, which permits exploration of the abdomen and evaluation of the operability of the cancer; if it proves inoperable, the abdomen may be closed and a gastrostomy performed if necessary. If the cancer is operable, the incision may be continued toward the thorax, providing ample exposure and facilitating removal of the stomach and the spleen. Continuity should be reestablished by an esophagojejunostomy. Operative mortality in the 12 patients in this series with operable lesions was 58%; with experience and the technical improvements that may be expected, it should be possible to reduce the present high mortality rate to about 12 or 15%. Three of the patients operated on are alive and well six months, one year, and two years, respectively, after the intervention; one developed a metastatic lesion in the liver accompanied by jaundice three months after the intervention; and one has functional disturbances of the gastric stump after a lapse of 18 months.

Medical Journal of Australia, Sydney

1:1-24 (Jan. 3) 1953

Use of ACTH and Cortisone in Disease of Childhood. S. E. J. Robertson.—p. 1.
Cortisone and ACTH in Paediatrics. R. H. Vines.—p. 5.
Observations on Virus Encephalitis in South Australia. J. A. R. Miles and D. W. Howes.—p. 7.

1:25-48 (Jan. 10) 1953

Medical Standards of Fitness in Royal Australian Air Force. E. A. Daley.—p. 25.
Standards of Fitness from Life Assurance Viewpoint. W. W. S. Johnston.—p. 27.
Medical Examination of Recruits for Services. F. K. Norris.—p. 31.
Liver Damage in Association with Coeliac Syndrome and Fibrocystic Disease of Pancreas. G. E. M. Scott.—p. 32.
Ascites and Hydrothorax Due to Invasion of Ovaries by Secondary Malignant Disease. E. Lloyd-Williams.—p. 34.

Minerva Medica, Turin

43:1401-1432 (Dec. 20) 1952. **Partial Index**

Prophylaxis of Infection Caused by Eberth's Bacillus. G. Izar.—p. 1401.
*D Cells in Diagnosis of Malignant Tumors and in Evaluation of Physical and Chemical Anticancer Agents. C. Sirtori.—p. 1403.
*Iodinated and Dialyzed Proteins in Treatment of Essential Obesity. A. Bertola.—p. 1413.

D Cell in Cancer.—The D cell has great importance in the biology and classification of cancer, in cytological and histological diagnosis, and in the evaluation of the activity of anticancer agents. The D cell of most types of cancer has a nucleus that is not enlarged but has a tendency to contract and assume a pyknotic aspect while the cytoplasm continues to enlarge accumulating keratinous or gelatinous substances. Despite these characteristics, the ability to synthesize and to function regularly is still present as are the histological characteristics that permit classification of the cancer. But when excess differentiation of the D cell begins, hyperchromia, granulation, enlarged nucleolus, and alterations of the nucleus-cytoplasm ratio are no longer present; the D cell loses its malignant characteristics, resembles the normal cell, and makes histological and cytological tests very difficult. This is especially true of chondromas with pulmonary metastases, malignant adenomas of the uterus, and metastasis to the thyroid gland secondary to adenomas. Chemical and physical anticancer agents, if given in adequate doses, inhibit mitosis but at the same time enhance the process of differentiation. Therefore, while the growth of the cancer is arrested, its volume is at first augmented because of the cellular hypertrophy resulting from the enhanced differentiation. This should be remembered whenever the cancerous mass fails to decrease after administration of these agents because it does not indicate ineffectiveness.

"Iodocasein" in Obesity.—"Iodocasein," a thyroid active protein derived from hydrolyzed casein and containing 8% iodine, was used in tablet form (0.25 gm. each) to treat 20 patients with obesity of the plethoric or hypersthenic, and anemic or hyposthenic type. After the patients' sensitivity to the new

product was tested by administration of small doses, the drug was given orally during meals in a dose of 0.01 to 0.03 gm. per kilogram of body weight daily. The treatment was continued for one to three months, with an interruption of 10 to 15 days after from 45 to 60 days. The patients were left on a free diet although restriction of fats, carbohydrates, and alcohol was advised. Side-effects (agitation, tachycardia, and insomnia) occurred in two patients only who had spontaneously taken massive doses of the drug. These did not reoccur when after 15 days they were again given the drug in normal doses. The pulse, arterial pressure, blood picture, nonprotein nitrogen levels, and electrocardiograms did not reveal great changes, whereas the effects were pronounced on urinary output, basal metabolism, and body weight. The urine volume, which was about 1,000 to 1,500 cc. daily before treatment increased by 100 to 200 cc. daily after the first day with a maximum increase of from 400 to 600 cc. on the ninth day. The two patients who took excess doses had a maximum increase of 800 and 700 cc. respectively. The basal metabolism increased in all of these patients during the first 15 to 30 days of treatment, and a slow but progressive loss of body weight followed. This was always proportional to the amount of "iodocasein" taken and amounted to about 2 to 3 kg. per month. The results varied according to the syndrome. The action of this iodinated protein was analogous to that of thyroid extracts but had the advantage of not causing phenomena of intolerance or hyperthyroidism.

New Zealand Medical Journal, Wellington

51:363-438 (Dec.) 1952. **Partial Index**

Artificial Menopause as Adjunct to Radical Treatment of Breast Cancer. P. Huck.—p. 364.
Toxic Reactions in Use of Para Amino Salicylic Acid (PAS). N. H. Brooke and J. V. Cable.—p. 368.
Poliomyelitis: Some Observations on Current Epidemic in United States. C. P. Powles, J. M. Watt and E. K. Hughes.—p. 372.
Relaxation of Pelvic Joints in Pregnancy: Report of Three Cases. J. L. Wright.—p. 377.
*Cardiac Myxoma with Cerebral Embolism: Report of Case. W. A. Russell. —p. 381.
Hydatid Cyst of Heart Simulating Aneurysm: Correction. G. H. Robertson.—p. 388.
Some Clinical Observations on Apical Systolic Murmur. E. H. Roche. —p. 390.
Carcinoma of Large Intestine. S. Barclay.—p. 394.

Cardiac Myxoma with Cerebral Embolism.—Primary tumors of the heart are rareties, and while the commonest of them, the intra-auricular myxoma, is benign, this tumor frequently causes sudden death or severe cardiac embarrassment. Therefore its correct diagnosis is of importance, especially as modern cardiac surgery offers the possibility of its removal. The postmortem observations in an unusual case of myxoma of the left auricle are described. The cause of death was a cerebral embolus from the cardiac tumor, with which the embolus was shown to be histologically identical. While there are no pathognomonic symptoms or signs of left auricular myxoma, several characteristic effects may be produced by this tumor. The commonest clinical picture presented is that of congestive heart failure either with or without evidence of mitral stenosis. The heart failure is nearly always severe and pursues a rapid and relentless course despite adequate rest and digitalization. Probably the second most common symptom is intermittent paroxysmal dyspnea or less often cyanosis, occurring especially on change of position. The dyspnea is presumably due to acute pulmonary edema. It is usually severe and is conspicuously out of proportion to other signs of cardiac embarrassment. Another noteworthy feature is that sometimes the patient unexpectedly prefers to lie flat despite marked dyspnea. A rather less common but nonetheless striking symptom is the occurrence of postural giddiness and fainting attacks. These occur abruptly on the assumption of an erect posture, even on sitting up, and they may be the only or the most prominent symptoms. Pain is an infrequent complaint and when it occurs, it is usually retrosternal in position and anginal in character. Systemic embolism from a myxoma is quite uncommon, and cerebral embolism has been described or suggested in only four previous instances, two of which are doubtful.

Nordisk Medicin, Stockholm

49:1-40 (Jan. 2) 1953. **Partial Index**

*Poliomyelitis Epidemic in Copenhagen in Fall of 1952 with Special Regard to Treatment of Acute Respiratory Insufficiency: Preliminary Report. H. C. A. Lassen.—p. 3.
Treatment of Poliomyelitis First Two Years After Infection. I. Alvik. —p. 9.
After-Treatment of Poliomyelitis: Experimental and Clinical Examination. P. A. Stensrud.—p. 15.
Importance of Abdominal Position in Preventing Flatulent Colic in Infants. A. Gyllenswärd and O. Mykland.—p. 22.

Poliomyelitis with Special Regard to Treatment of Acute Respiratory Insufficiency.—In the period from late July to Dec. 1, 1952, 316 patients with respiratory paralysis and/or paralysis of pharynx and larynx were treated in the epidemic department of Blegdam Hospital, with sometimes as many as 70 patients at one time requiring artificial respiration. After Aug. 27 the standard treatment of stagnation of secretion in the upper respiratory tract and paralysis of the respiratory muscles was high tracheotomy, introduction of a rubber cuff-tube, frequent use of aspiration and bronchoscopy, postural drainage, and manual bag ventilation. Treatment along these lines, Lassen says, reduced the mortality from at least 80% to about 40%.

Philippine Medical Association Journal, Manila

28:683-742 (Dec.) 1952

Modus Operandi in Control of Malaria Under Philippine Conditions. A. Ejercito.—p. 683.
Transformation and Fate of Two Cases of Secondary Dermatitis Exfoliativa. D. M. Garduño, C. B. Icasiano and D. de Leon.—p. 691.
Bilateral Cataract Extraction in One Sitting. J. O. Chan and P. de la Paz. —p. 700.
Management of White Blood Cell Disorders. G. L. Reyes.—p. 706.

Prensa Médica Argentina, Buenos Aires

40:125-186 (Jan. 16) 1953. **Partial Index**

Cadmium, Wuhrmann and Wunderly Tests and Hanger, Takata-Ara and Weltmann Reactions: Comparative Study in 125 Cases. A. L. C. Maggi, M. Meeroff and E. Iovine.—p. 125.
Arterial Hypertension. Definition, Classification, Cause, and Pathogenesis. A. Navarro.—p. 131.
*Treatment of Recurrent Herpes Simplex with Yaoi's Antirabic Vaccine. J. M. Borda and R. Esquivel.—p. 142.

Treatment of Recurrent Herpes Simplex.—The authors obtained good results in two patients with recurrent genital herpes simplex following treatment with Yaoi's antirabic vaccine. This is prepared by inactivating and preserving the virus of rabies by means of sodium ethylmercurothiosalicylate. The patients did not report for late follow-up studies. One case is reported in detail. A woman, 19 years old, had recurrent herpes simplex from childhood. Vaccination against smallpox "took" when the patient was an infant, but did not "take" when she was 18 years old. The crops of herpes simplex vesicles appeared every three of four months from the time the patient was 12 until she was 18. During the last year there were no symptom-free periods. Vitamins, arsenic preparations, and aureomycin had no effect on the disease. The successful treatment consisted of administration of Yaoi's antirabic vaccine, which was given in a daily dose of 0.2 cc. for 10 consecutive days in the deltoid regions. A small herpetic vesicle appeared during the treatment but spontaneously disappeared. The disease seems to be under complete control, but the period of eight months since discontinuation of the treatment is too short to permit definite conclusions.

Presse Médicale, Paris

61:21-40 (Jan. 10) 1953. **Partial Index**

Blood Plasmocytosis in Serum Accidents. R. Worms and B. Dreyfus. —p. 21.
*Artificial Kidney—Trials and Results. L. Bartrina.—p. 23.
Pulmonary Arteriovenous Aneurysms. P. Nogrette.—p. 25.

Artificial Kidney.—The artificial kidney is not a substitute kidney but a hemodialytic apparatus designed to help a diseased kidney to function. It is not a last-minute remedy, because it takes time and because it can succeed only if there is

enough healthy renal tissue to enable the kidney to resume its work. The procedure consists in withdrawing from 300 to 800 cc. of blood from the patient, citrating it, and passing it through a dialyzing cell, which has walls of cellulose acetate with the same dialyzing qualities as an organic membrane. The cell containing the blood is then immersed in a bath of distilled water to which electrolytes are added until their concentration equals that found in the blood, thus preventing electrolyte loss during dialysis. The blood is kept in the dialyzing cell until it has been completely freed from urea and the toxins accompanying it, approximately one hour being required for the elimination of 1 gm. of urea. The dialyzed blood is then reinjected into the patient and the blood urea is immediately determined. The procedure may be repeated two or three times, depending on the therapeutic effect of the first dialysis. The method has been tried in 53 patients with (1) extrarenal uremia; (2) progressive renal lesions in the final, irreversible stage; (3) chronic renal lesions with some normal parenchyma remaining; or (4) acute reversible renal lesions. Patients with extrarenal uremia respond perfectly to the dialytic discharge of toxins, but their ultimate recovery depends on the extent of the extrarenal lesion. Patients in the second group cannot be helped, because there is no normal parenchyma left; an increase in the blood urea in spite of dialysis is pathognomonic of irreversible renal lesions, and the procedure should be abandoned when it appears. Patients presenting chronic renal lesions with some normal parenchyma remaining cannot be cured, but the disease may be arrested by dialysis; apparently the healthy nephrons are better able to resist sclerosis when they are no longer overloaded. Treatment in cases of chronic nephritis with elevated uremia should be begun as soon as possible: some of the patients in whom dialysis has been tried are being maintained with diminishing blood urea levels and with increasing intervals between treatments; the reduction in the blood urea enables the renal parenchyma which has not yet been affected to remain intact. Dialysis quickly relieves acute reversible renal lesions. The dialyzed blood stimulates the kidney; renal function is facilitated, and the vicious circle—renal lesion, renal insufficiency, increase in blood toxins, renal overloading, renal deficit—is broken. The procedure is entirely harmless; the patient undergoes merely the withdrawal and reinjection of his own blood. The technique is simple and the equipment, which can be used at the patient's bedside, is easy to maintain and to clean, being made of transparent plastic.

Revista Clínica Española, Madrid

47:217-296 (Nov. 30) 1952. **Partial Index**

Observations on Etiology of Subacute Bacterial Endocarditis. J. M. Ales, E. Arjona and C. Jimenez Dias.—p. 224.

Some Considerations on Pulmonary Resection in Treatment of Pulmonary Tuberculosis. J. Alix, L. Escudero and B. Covas.—p. 227.

*Inhibitory Action of Isoniazid on Tuberculin Reaction. J. Guallar Segarra, A. Pomares Riquelme and E. Mas Quiles.—p. 235.

Inhibitory Action of Isoniazid on Tuberculin Reaction.—Tuberculin tests with a 1:1,000 tuberculin solution alone, and with isoniazid, added to make a 5% concentration were made on two groups of hospitalized patients with various forms of pulmonary tuberculosis who had not had this drug in therapy of tuberculosis. The tests were made intradermally on both forearms of the patients simultaneously. In 48 of the first group of 70 patients the skin reaction was visible in 24 hours, showing diminished reactivity in 38 cases (79.16%). In 48 hours the reaction was visible in all patients, showing diminished reactivity in 52 (74.28%). The tuberculin-hydrazid mixture used in a second group of 66 patients was kept at room temperature for three days before the test was made. The reaction was observed in 48 hours, showing diminished skin reactivity in 10 cases (15.15%). The authors believe that the results of the observations show that isoniazid has an inhibitory action on the sensitivity of the skin to tuberculin, which is almost obviated when the drug is in contact with tuberculin for three days. Whether or not the inhibitory action of the drug is due to neutralization of tuberculin or to repression of the development of skin allergy is not as yet known. It is possible that isoniazid may both inhibit tubercle bacilli and improve the immunologic condition of the patient. These facts would explain the favorable results of the drug in the treatment of tuberculosis of various forms and of various localizations.

Revista Española de Pediatria, Zaragoza

8:557-706 (Sept.-Oct.) 1952. **Partial Index**

Psychiatric Sequelae of Encephalopathies in Children (Oligophrenia Syndrome and Oligophrenia as an Entity). J. de Moragas.—p. 607.

Dysglycogenosis of Hepatic Predominance: Differential Diagnosis. J. Pou Díaz.—p. 617.

*Treatment of Tuberculous Meningoencephalitis with Isoniazid by Mouth and Streptomycin Intramuscularly. M. Suárez.—p. 689.

Treatment of Tuberculous Meningoencephalitis.—From 1947 to 1952, the author treated more than 100 infants and children with tuberculous meningoencephalitis with streptomycin by the intrathecal route. Cure was obtained in 50% of the patients. The children are still normal two years after discontinuation of the treatment. Failure of the treatment in the remaining cases was due to the establishment of blockage of the cerebrospinal fluid. He believes that lumbar puncture and the administration of antibiotics by the intrathecal route cause meningeal irritation and increase meningeal exudation with consequent blockage. He stresses avoidance of the intrathecal route and reports excellent results from a treatment not employing this route. This consists in the oral administration of isoniazid in daily doses of 12 mg. per kilogram of body weight and the intramuscular injection of 500 mg. of streptomycin every 48 hours. This report deals with the results of the treatment in two infants. One was in the 13th day of the disease and in the precoma stage. The other had primary tuberculosis and was observed early in the course of tuberculous meningoencephalitis. In both cases the results were excellent. The length of the treatment is not specified, but favorable effects were observed after an average of one week. In one and one-half months the condition of the patients was apparently normal and normalization of the cerebrospinal fluid and cure of the patients was complete in three months. The author says that this treatment is better than administration of isoniazid alone because the two drugs have a reciprocally potentiating action on the tubercle bacillus, which does not show resistance against either when they are used in association. The dose of 10 or 12 mg. of isoniazid used is nontoxic. The treatment is harmless and reliable with rapid normalization of the cerebrospinal fluid and cure of the patient. The patients reported on have been observed from May, 1952, up to now. Six patients are still under treatment. This article is a preliminary report.

Rivista di Ostet. e Ginecologia, Florence

7:551-598 (Nov.) 1952. **Partial Index**

Latest Development on Problem of Eclampsia. J. L. Mastboom.—p. 551.

*Trichomoniasis Vaginalis in Sexual Dysfunctions. G. B. Candiani and P. Sora.—p. 559.

Skin Diagnoses of Cancer with Special Reference to Kaufmann's Reaction. B. Bondi.—p. 572.

Trichomoniasis of Vagina in Sexual Dysfunctions.—A study was made in 98 patients with trichomoniasis of the vagina in an attempt to determine whether there was any correlation between this disease and the function of the sexual organs. Eight of these patients were menopausal and all but 19 of the others had irregular menstrual cycles. Trichomoniasis was the only complaint in 26 patients at admission, but a careful case history revealed that 8 had hypo- and oligomenorrhea, 4 had amenorrhea, 2 polymenorrhea, 1 menometrorrhagia, and 3 alterations of the cycle with periods of amenorrhea alternating with periods of menometrorrhagia. Special studies in a group of patients revealed pronounced hypoplasia of the uterus, defective endocrine action of the ovaries resulting in infrequent menstrual cycles, and vaginal atrophy characterized by a prevalence of basophil cells in the intermediate strata and by oval and round cells in the deep layers. Biopsy of the endometrium revealed atrophy of the mucosa with a few glandular elements in process of destruction, poor cellular tissue, and sometimes a tendency to senescence of the connective tissue. There was no reaction to intradermal injection of anterior

pituitary extract, estrogen, and progesterone in these patients thus confirming, according to the authors, the hormone insufficiency suggested by the cytohistological investigation. The acidophilic properties of the vaginal cells were increased while the glycogen content was low. Since it was proved that trichomonas grows well in culture media rich in dextrose, it is suggested that carbohydrates are necessary to the life of the protozoon, which, when present in the healthy vagina, uses the intracellular glycogen for its nutrition. The authors conclude that the pathogenicity of the flagellate is undoubtedly linked to a condition of deficient estrogen secretion. The alteration of the local mechanism of defense produces the most favorable environment for the development of the protozoon which in turn produces lesions of the vaginal mucosa and the vessels of the submucosa.

Semaine des Hôpitaux de Paris

29:313-366 (Jan. 30) 1953. **Partial Index**

Pseudoparalytic Myasthenia Gravis (Erb-Goldflamm's Disease). H. Roger. —p. 313.
Paroxysmal Hypertension Due to Spongiocytic Tumor of Left Adrenal Cortex; Removal and Cure. C. Benelli, M. Laporte, A. Geyer and M. Curet.—p. 322.
Kwashiorkor and Its Relation to Nutritional Cirrhosis and Cancer of the Liver. J. L. Bergouniou, R. Masseyeff, G. Péquignot and J. Trémolières. —p. 324
*New Facts on Chorioepithelioma (Trophoblastoma of Pregnancy) and Study of Factors of Malignancy: Biological Evidences of Early Metastatic Tendency of Common Hydatidiform Moles (Benign Trophoblastomas). H. Hinglais and M. Hinglais.—p. 334.

Chorioepithelioma of Pregnancy and Factors of Malignancy.—Hormonal study of four women subjected to hysterectomy for hydatidiform mole who have been followed for from 16 months to 6 years shows that extrauterine metastases existing at the time of operation were slowly resorbed after elimination of the focus in the uterus. The possibility that all four patients had potentially malignant moles is mathematically very slight; consequently, the fact observed after hysterectomy for a benign mole is obviously valid for all benign moles without hysterectomy. This leads to the new conclusion that metastatic dissemination of chorial tissue is not an accompaniment of a special, malignant form of that tissue, but is produced in varying degrees whenever a mole develops. Every molar placenta, whether its development is potentially malignant or benign, is by its nature a source of metastases. Hormonal determinations now make it possible to predict from the beginning whether the development of a mole will be benign or malignant. No previous method has ever been able to do this; the only criterion was the patient's death or recovery. The almost constant tendency of all molar metastases towards spontaneous cure indicates that malignancy or benignity depends in each case on the relation between the mass of trophoblastic tissue implanted in the body as a whole and the normal physiological capacity of the body to resist this highly specialized tissue. The diagnosis, prognosis, and treatment of hydatidiform mole will be profoundly affected by these new findings, which introduce an element of unity into the problem of chorioepithelioma of pregnancy and its malignancy.

Tidsskrift for Den Norske Laegeforening, Oslo

73:1-38 (Jan. 1) 1953. **Partial Index**

*Death Due to Therapeutic Doses of Morphine or Morphine-Scopolamine in Persons Affected by Alcohol or Barbituric Acid. K. O. Møller.—p. 1.
Chronic Tumefaction of Lips and Relapsing Peripheral Facial Palsy (Melkerson's Syndrome) on Allergic Basis. O. Andrup.—p. 9.
Pulmonary Tuberculosis After BCG Vaccination. S. Bøyum.—p. 10.
Psychiatric Considerations with Regard to Artificial Insemination. P. Anchersen.—p. 17.

Death Due to Morphine in Persons Under Influence of Alcohol or Barbituric Acid.—Møller states that no reports have been published on the danger associated with the injection of morphine or morphine-scopolamine in persons already strongly affected by alcohol or under the influence of barbituric acid or bromides and discusses the most typical of the fatal cases of this kind examined in the pharmacological laboratory of the University of Copenhagen. Morphine acts synergistically with alcohol, barbituric acid, and bromides. No investigations on synergy between morphine and alcohol have been reported, but the synergy between morphine and barbituric acid is well known, and one of the cases shows that bromides can also act synergistically with morphine. Before administering morphine or morphine-scopolamine the physician should always consider whether the patient in the given case is already under the influence of one of the substances named. The danger of poisonous effect is increased when the injections are intravenous instead of subcutaneous; in relatively many cases the fatal injections were given intravenously.

Ugeskrift for Laeger, Copenhagen

114:1853-1872 (Dec. 25) 1952

*Cytology of Bone Marrow in Non-Anemic Funicular Myelopathy (Subacute Combined Degeneration of Spinal Cord.) P. Bastrup-Madsen. —p. 1853.
Neuropathy Caused by Lack of Antipernicious Anemic Factor Originated After Resection of Stomach. P. Bastrup-Madsen.—p. 1860.

Cytology of Bone Marrow in Nonanemic Subacute Combined Degeneration of Spinal Cord.—Bastrup-Madsen presents further clinical evidence that the spinal cord lesions of pernicious anemia can occur as an independent neurological affection that leads to disability or continues for years without the development of a regular pernicious anemia. Ten cases of subacute combined degeneration of the spinal cord with histamine-fast achylia are described. In six cases the hemoglobin and erythrocyte values were normal, and in four cases there was a slight reduction in the erythrocyte count. Examinations of the bone marrow revealed slight maturation disturbances in the erythropoiesis in seven cases; in all cases there were perniciosiform disturbances in maturation of granulocytes, testifying to a lack of antipernicious anemia factor as the basis for the myelopathy. There was no correlation between the degree of maturation disturbances in the granulopoiesis and the degree of the myelopathy. In five cases examination of the bone marrow after two weeks of antipernicious anemia treatment showed normal bone marrow; in two additional cases there was a slight rise in the erythrocytes during treatment. In five cases some improvement in the neurological symptoms followed during the specific treatment. In nine cases the disorder had persisted for from 2 to 20 years, and in seven cases more or less disability had developed before the start of antipernicious anemia treatment. In these cases specific antipernicious anemia treatment must be instituted without waiting for the development of anemia. Examination of the bone marrow may be a valuable diagnostic aid even though the peripheral blood shows normal conditions. The same substances, liver and stomach preparations, and vitamin B_{12}, seem to be important for both the central nervous system and the bone marrow.

115:1-36 (Jan. 1) 1953. **Partial Index**

Postinfectious Purpura as Complication in Common Exanthematous Diseases of Children: Case of Severe Acute Thrombopenic Purpura After Chickenpox and Similar Milder Case After Measles. E. Hansen.—p. 6.
Pulmonary Cancer in Medical Department. K. Kjerulf-Jensen and N. B. Krarup.—p. 11.
*Value of Repeated Cytological Examinations of Sputum in Diagnosis of Bronchiogenic Carcinoma. J. L. Hansen and V. Dreyer.—p. 13.
Examinations of Sternum and Crest of Ilium with Regard to Diagnostic Aspiration Puncture. W. Kiaer.—p. 16.

Value of Repeated Cytological Examination of Sputum in Bronchiogenic Carcinoma.—While cytological examination of bronchial secretion derived directly from the pathologic area by bronchoscopy or sound is the preferred method, Hansen and Dreyer find that examinations of satisfactory specimens of sputum, if carried out often, can in most cases give the diagnosis. Cytological examination of the sputum from 122 out of 259 patients with bronchiogenic carcinoma showed tumor cells in 49 cases (40%), suspect tumor cells in 28 cases (23%), and no tumor cells in 45 cases (37%). An average of 3.1 specimens of sputum per patient were examined. In 23 of the 45 cases with negative results diagnosis was made by other methods before thoracotomy or necropsy. Repeated examinations of sputum play a part in the evaluation of false tumor cells, as they appear with considerably less constancy than true tumor cells. In cases where five or six specimens of sputum were examined tumor cells were demonstrated in 90% of the cases.

BOOK REVIEWS

Poliomyelitis: Papers and Discussions Presented at the Second International Poliomyelitis Conference. Compiled and edited for International Poliomyelitis Congress. Cloth. $7.50. Pp. 555, with illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1952.

This volume contains the papers, discussions, and material given in the exhibits that were presented at the Second International Poliomyelitis Conference held during September, 1951, at the Medicinisk-Anatomisk Institut, University of Copenhagen. Here in one volume is practically a complete picture of the status of poliomyelitis as of the summer of 1951. The papers and discussions are by international authorities familiar to all interested in the various phases of virus and epidemiological research, clinical care, and rehabilitation in poliomyelitis. The reports and discussions on fundamental aspects of virus and its interaction with the host cell, the pathology and pathophysiology of poliomyelitis, differential diagnosis, treatment, physical medicine, and rehabilitation in poliomyelitis are all of excellent quality. There are also reports of the official delegates of the various countries represented at the conference, as well as discussions of the social problems and the psychological aspects of poliomyelitis. The material shown in the scientific exhibits presented at Copenhagen is also reproduced.

At Copenhagen were presented the results of the basic research that led to the field trials on the efficacy of gamma globulin in prevention of paralytic poliomyelitis. The methods used in the classification of strains of poliomyelitis virus and their cultivation in tissue culture were described. The results of this work have aroused the hope that an active vaccination program may be possible within a reasonable length of time. Concise reports on the epidemiology of poliomyelitis with excellent discussions were presented, with emphasis on the fact that intimate contacts are responsible for the highest attack rates.

The summary by Dr. John R. Paul is a concise statement on the knowledge and trends in poliomyelitis as of the summer of 1951. It will be interesting to compare this volume and Dr. Paul's summary with a similar volume planned to follow the Third International Conference to be held in Rome during the summer of 1954. There is no other single volume on poliomyelitis that covers the subject so well. The book is beautifully bound and well printed on fine paper, with excellent charts and illustrations.

Anzeige und Ausführung der Eingriffe an Ohr, Nase und Hals. Von Walther Uffenorde. Mit einem argänzenden Beitrag: Die Eingriffe zur Gehörverbesserung von Prof. Dr. med. Horst Wullstein, leitender Arzt der Hals-Nasen-Ohrenabteilung des Jung-Stilling-Krankenhauses, Siegen, Westf. Second edition revised by Doz. Dr. med. Hellmut Uffenorde, leitender Arzt der Hals-Nasen-Ohrenabteilung des Krankenhauses, Alt-Mariahilf, Göttingen. Cloth. 79.80 marks. Pp. 540, with 408 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1952.

The second edition of this book will appeal to younger otorhinolaryngologists, for it has been revised to include many recent advances. There are discussions on new methods of local and general anesthesia; otitis media in infants; the primary suture of wounds; advances in military surgery; treatment of new growths invading the nasal and pharyngeal cavities, of labyrinthitis and other intracranial complications, and of esophageal stenosis; and an account of the impact of chemotherapy and antibiotic therapy on ear, nose, and throat conditions. The book is well bound, the paper is excellent, and the illustrations are informative and clearly defined.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Facing the Future's Risks: Studies toward Predicting the Unforeseen. Edited by Lyman Bryson, with collaboration of Ralph H. Blanchard and others. With comments on insurance by Lawrence A. Fitzgerald, Report of conference marking 200th anniversary of successful establishment of Mutual Insurance in America, New York City, 1952. Cloth. $4. Pp. 318, with 12 illustrations. Harper & Brothers, 49 E. 33rd St., New York 16, 1953.

Last year the Mutual Insurance Companies of America celebrated the 200th anniversary of the founding of the first Mutual Insurance Company by Benjamin Franklin and his associates in Philadelphia. As a part of this celebration, this group of businessmen held a three day conference in New York at which some 11 distinguished authorities were invited to express their views on the future of their various special fields. These scholars were not asked to consider the possible effect of their views on the institution of insurance but were allowed a wide latitude in selecting their subjects. In this setting insurance executives listened to dissertations on subjects such as physical science and the future, two centuries of political change, foundations of America's economic greatness, population trends in the United States, psychology—yesterday, today, and tomorrow, American women and American values, and probability and statistics. The lecture on probability and statistics would interest those who enjoy games of chance as well as those who guide great industries as they too are largely dependent on the laws of probability. In fact, the author of this lecture, Warren Weaver, director of the Division of Natural Sciences of the Rockefeller Foundation, says that every aspect of science that involves measurement is concerned with the branch of probability known as the theory of errors. He hopes that the elements of the theory of probability will be included in high school courses and that this material will replace some of the out-moded mathematical subjects. The author of the lecture on physical science and the future, Louis N. Ridenour, a physicist, foresees great practical developments in science, biology, and in chemistry. The most important engineering development visible today, he says, is the development of the theory of information and of information machines. These machines, when they are made reliable and inexpensive, may be substituted for human beings in the performance of any routine occupation that can be fully specified. Just as the increasing expense of domestic servants created the home industry, so the general rising expense of labor can be expected to support the information industry. Ridenour refers to Professor Wiener's statement that the present time is the beginning of the second industrial revolution. In the first, machines were substituted for man's muscles; in the second, machines will be substituted for man's mind. Tomorrow may have as little place for the clerk as today has for the galley slave. Ridenour is not so optimistic when he speaks of atomic energy. There appears to be, he says, no fundamental limitation to our ability to reproduce atomic weapons. He refers to the estimate made some years ago by Robert Oppenheimer that the explosion of 10,000 atomic bombs anywhere in the world would endanger human life everywhere in the world and would produce a more or less uniform powdering of the whole surface of the earth with radioactive material in a concentration that would be dangerous to human life. He thinks this grisly prospect is real and not far off; he thinks that as yet no man knows the way out of this dilemna.

Frank W. Notestein of the Office of Population Research at Princeton University concludes that in this age of incredible complexity, skills seem likely to count as never before and that the consideration of political and military strength, as well as that of wealth, suggests the wisdom of devoting our major attention to improving the capacities, health, and training of persons rather than stimulating rapid growth in population. The 11 lectures, plus one entitled "Risks and Insurance" by Ralph H. Blanchard, professor of insurance, Columbia University, and one entitled "Mutual Insurance and the Risks of the Future" by Lawrence A. Fitzgerald, secretary, Mutual Insurance Anniversary Committee, make up this interesting book.

Understanding Old Age. By Jeanne G. Gilbert, Ph.D., Lecturer in Psychology, Fordham University, New York. Cloth. $5. Pp. 422, with 3 illustrations. Ronald Press Co., 15 E. 26th St., New York 10, 1952.

This book, according to its preface, is intended as a guide to better professional understanding of elderly people. It is divided into two parts; the first takes up the normal life changes in aging, and the second is devoted to the abnormal aspects of the problem. Altogether there are 11 chapters, with a summary and an excellent bibliography at the end of each. In addition, there is a general index of names and subjects, which adds significantly to the value and usefulness of the book. It will serve well not only as a source of general information on the subject but also as a textbook for teaching and for reference work.

Written by an experienced, practicing professional psychologist, the volume is concerned predominately with permitting an understanding of the psychological, psychosomatic, and sociological manifestations of old age. The author frankly states that she has drawn on other literature for her discussion of the medical problems of the subject. It is not surprising, therefore, to find that the volume is not at its best in medical discussions; however, this is not a serious disadvantage since the book is not purported to be a medical treatise and there are already available a number of excellent volumes on medical gerontology and geriatrics.

Within the framework of her special sphere of interest, the author's point of view, discussion, and conclusions appear sound, persuasive, and in accord with what we may flatter ourselves in thinking is the modern enlightened attitude toward old age. Understanding old age involves, to a major extent, the appreciation of the mental and emotional aspects of the aging process; this volume is highly recommended from that point of view.

Surgery for Nurses. By James Moroney, M.B., Ch.B., F.R.C.S., Visiting Consultant Surgeon, Clatterbridge General Hospital, Cheshire, England. With foreword by Miss Dorothy M. Smith, O.B.E., Chairman of General Nursing Council for England and Wales. Second edition. Cloth. $6. Pp. 676, with 585 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Place, Edinburgh 1, 1952.

Many sections of this volume have been rewritten, and a chapter on the nurse and surgical diagnosis has been added. The principal changes are in the sections on anesthesia, antibiotics, burns, radiotherapy, and gastric, thoracic, cerebral, and ophthalmic surgery. More than 50 new illustrations have been added. The book covers a broad complex group of subjects, and the material is concise and factual. Since the material is based on the syllabus of the General Nursing Council for England and Wales, it is assumed that student nurses in those countries are receiving adequate information on surgery. Nursing aspects of surgery are referred to briefly, although little attention is given to explaining their relationship to the emotional, physiological, and sociologic status of the patient. The author may have intended to present only facts, without considering relationships. Use of this book should, therefore, be guided by the knowledge that supplementary reading material and instruction are necessary to help the student understand the association between medical and nursing aspects of surgery.

Therapeutic Use of Pools and Tanks. By Charles L. Lowman, M.D., D.Sc., F.A.C.S., Director of Education and Rehabilitation, Orthopaedic Hospital, Los Angeles, and Susan G. Roen, Director of Physical Therapy, Orthopaedic Hospital, Los Angeles. Loose-leaf. Paper. $3. Pp. 90, with 196 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1952.

This monograph presents briefly some of the basic principles of hydrotherapy. Exercise therapy that can be given in a pool or tank also receives extensive consideration. Although the title of the book might suggest that hydrotherapy is the major factor in bringing about the desired results in the patient, most of the illustrations appropriately show the therapist administering exercise therapy to the patient. The text also discusses the equipment and administration of a hydrotherapy department and the use of braces and other supports. The book will be of special interest to the physiatrist and the physical therapist.

Chemistry of Food and Nutrition. By Henry C. Sherman, Ph.D., Sc.D. Eighth edition. Cloth. $6. Pp. 721, with 23 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1952.

This latest edition of Dr. Sherman's widely used textbook continues to uphold the high standards of the previous editions. The tremendous forward strides in the ever-increasing knowledge of nutrition since the previous edition in 1946 have made it necessary for every chapter to be revised; many have had to be completely rewritten. There are entirely new chapters on folic acid, vitamin B_{12}, and the citrovorum factor. The last two chapters, which deal with trends in food consumption and the improvement of normal nutrition, illustrate the reasons why the science of nutrition is assuming such a commanding role in the life and health of every person. While designed primarily for use as an undergraduate textbook, it should be extremely valuable to the physician who desires a comprehensive, up-to-date discussion of the general subject of nutrition.

Blood Clotting and Allied Problems: Transactions of the Fifth Conference, January 21 and 22, 1952, New York, New York. Edited by Joseph E. Flynn, M.D., Associate Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York. Cloth. $4.95. Pp. 368, with 148 illustrations. Josiah Macy, Jr. Foundation, 16 W. 45th St., New York 36, 1952.

This handsome volume presents a discussion of recent problems of blood coagulation. It includes a chapter on clinical evaluation of newer anticoagulants and one on newer clotting factors. Three chapters deal with the hematological effects of ionizing radiation, such as the defects in hemostasis, pathogenesis of irradiation hemorrhage, and the influence on plasma antithromboplastin activity. The last chapter discusses fibrinolysin and antifibrinolysin. The main presentations are made by active research workers, and the discussion, which in many places interrupts the main speaker, assists in the clarification of difficult problems. As always, a "multidiscipline" approach assists in enlivening the discussion; moreover, many independent clinical and laboratory observations are presented, and some chapters are followed by an extensive bibliography. An attempt is made in the appendix to clarify the nomenclature of the various nonprothrombin plasma factors involved in the conversion of prothrombin to thrombin. A cumulative index of the transactions of the first five conferences on blood clotting is given. The book will be helpful to any physician interested in blood clotting, to the research worker who wants up-to-date information, and to the person looking for a comprehensible review of the subject.

The Pharmacology of Anesthetic Drugs: A Syllabus for Students and Clinicians. By John Adriani, M.D., Director, Department of Anesthesiology, Charity Hospital, New Orleans. Third edition. Cloth. $9.50. Pp. 179, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1952.

The third edition of this book has been considerably revised, and subjects such as curariform drugs, central nervous system stimulants, and drugs affecting the autonomic nervous system have been added. All of the agents used in anesthesiology are discussed from a pharmacological viewpoint. The material is presented as before in outline form. The author stated in the introduction to the first edition, "The data will of necessity appear dogmatic. The reader should not be misled by the undeserved air of finality the syllabus assumes." This self-criticism must still be leveled at the book. It undoubtedly contains many important and established facts, but, with such a manner of presentation, errors are inevitable and controversial topics cannot be intelligently considered. The text states, for example, that the carotid sinus is depressed if the level of spinal anesthesia extends to D 4. Presumably this means that sympathetic outflow may be interrupted (although not completely) by such a level. The carotid sinus itself, of course, is unaffected. Despite the difficulties posed by the diagrammatic form of presentation, students of anesthesiology have found this text valuable as a source of factual information. The format is excellent, although the height of the volume makes storage awkward.

An Introduction to Medical Science: An Elementary Text on Pathology. By William Boyd, M.D., M.R.C.P., F.R.C.P., Professor of Pathology, University of British Columbia, Vancouver, B. C., Canada. Fourth edition. Cloth. $4.50. Pp. 304, with 127 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1952.

In the preface to this book Professor Boyd states that it "is a general introduction to the study of disease, an airplane view of that subject, its causes and the bodily changes which accompany it. When one descends to earth again it is easier to understand the details of the country over which one has flown." This expresses very well the purposes of the book, which is obviously designed for the use of nurses and laboratory technicians, and as a general introduction to medicine for other interested persons. It presents the subject from the point of view of pathology. The first section deals with the general principles of pathology and the second with the organs and their diseases. The final section discusses some practical applications, such as the principles of treatment and the collection of material for the laboratory.

As anyone familiar with Professor Boyd's other books would expect, this one is interestingly written. The material is well organized, clearly presented, and the illustrations are well chosen and well reproduced. The book is up-to-date and includes, for example, brief discussions of the interrelations of the endocrine glands and the part they play in stress and metabolism. One minor criticism is the use of an archaic system of measurement. For instance, on page 233, the adrenal glands are described as being the size of a flat thimble. On the whole, this is a well-written, elementary introduction to medicine through pathology. It should be useful to nurses, technicians, and others who need such a "bird's-eye view" of the natural history of disease.

Ward Administration. By Deborah MacLurg Jensen, R.N., B.S., M.A., Instructor in Nursing Education and Sociology, University of Missouri, Columbia. Cloth. $4. Pp. 335, with illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

This book deals principally with the administrative aspects of a head nurse's job. Greatest emphasis is on the responsibility of the head nurse for nursing care and for ward personnel; her responsibility for the educational program of students is described fully in a companion volume, "Clinical Instruction."

The relationships of the hospital to the community and of the head nurse to the modern hospital are described in unit 1. Unit 2 discusses the role of the head nurse in planning to meet patient needs. Physical environment of the ward is covered in unit 3. Principles of administration, supervision, teaching, and their application are dealt with in units 4 and 5. Unit 6 concerns the qualifications and preparation of the head nurse. Each unit is followed by an annotated bibliography and discussion questions. The appendix contains a sample ward manual. An attempt is made to show the way in which a young head nurse may work out a ward manual that will be functional for her department. There are three charts and 16 figures. Valuable information is given for head nurses or staff nurses who share the responsibility of a head nurse's duty. Fundamental material on administration, supervision, and education is presented in a manner that clarifies the cooperative role of theory and practice. This would serve well as a textbook for courses in ward supervision and administration and as a reference book to be kept on the head nurses desk for everyday use.

Art School Self-Taught. By Matlack Price and A. Thornton Bishop. Cloth. $10. Pp. 439, with illustrations. Greenberg, Publisher, Inc., 201 E. 57th St., New York 22, 1952.

The first section of this book contains instructions on painting, drawing, and sculpture. There is particularly valuable material on painting and drawing techniques. The second section of the book covers professional art, such as advertising design, industrial design, window display, and interior design. The chapter on lettering is excellent, but the chapter on fashion art should have been either enlarged or omitted. Illustrations throughout the book clarify the text. This work should be helpful to the person who wants to learn to express himself artistically without taking formal instruction.

Food for Life. By Ralph W. Gerard, Ph.D., M.D., editor, and others. Cloth. $4.75. Pp. 306, with illustrations. University of Chicago Press, 58th St., and Ellis Ave., Chicago 37; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1, 1952.

This unusual book, prepared by six authorities on nutrition, presents in a popular manner a complete survey of the essentials of nutrition. Its objective is to give analytical and explanatory scientific principles easily comprehended by the intelligent layman, rather than practical or specific diets. Based on the maxim, "know thyself," the book tells what the body needs, which foods supply its needs, and how these foods are used in the body. The literature and historical notes will delight the reader. Clever drawings are used throughout and are effective in simplifying the necessary technical explanations. Teachers, dietitians, and public health workers will find the book most useful as a supplemental reference for its panorama of nutrition. It is a book the physician can recommend to patients who desire an understandable explanation of the essentials of nutrition.

Metabolic Interrelations with Special Reference to Calcium: Transactions of the Fourth Conference, New York, N. Y., January 7-8, 1952. Edited by Edward C. Reifenstein, Jr., M.D., Director, Oklahoma Medical Research Institute and Hospital, Oklahoma City. Editorial assistant; Shirley L. Wells, M.S. Cloth. $4.50. Pp. 262, with 50 illustrations. Josiah Macy, Jr. Foundation, 16 W. 46th St., New York 36, 1952.

The book presents, in the usual informal fashion, discussions of the various problems that are related, directly or indirectly, to calcium metabolism. A wealth of often fragmentary material is made available that is for the most part unpublished. It is illuminated by the give and take of a lively discussion; nevertheless, division into many chapters and subdivision by well-placed headings makes the material comprehensible and readily accessible. The first chapters cover the problems of cartilage and bone matrix formation and, also, bring up-to-date the information on the collagen problem; this information is very well illustrated, and valuable definitions are given. The discussion progresses to problems of the proteins and polysaccharides of mesodermal tissue. This is followed by interesting data about the process of calcification, the mineral binding of cartilage, and the role of the parathyroid hormone. Extensive discussions deal with the structure of calcified tissue and the molecular arrangements and the crystal chemistry of bone, with application of the methods of mineralogy. The structure of dental enamel and of teeth in general is discussed, and information on the turnover of sulfur, sodium, and phosphate in the bone is presented. The book will be of special value to physicians interested in calcium metabolism and bone diseases.

Textbook of Physiology. By William D. Zoethout, Ph.D., and W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa, Iowa City. Eleventh edition. Cloth. $4.75. Pp. 692, with 307 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

This book represents a continued effort to present the essential ideas of human physiology for students of dentistry, pharmacy, and nursing, without letting its size exceed reasonable bounds. This is a difficult task, but the results are appreciated by anyone who has struggled with some of the large treatises that have been inflicted on medical students in recent years. The book is commendable for clarity of organization and directness of style. There are many illustrations, 37 of which have been added or redrawn for this edition. By way of criticism, figure 263 (page 564), taken from the work of a neuroanatomist now dead, and whose name, incidentally, is misspelled, is labeled with small letters in no discernible order; some of the letters can be found in the legend, but others are "explained in the text." Such vague markings make unnecessary demands on the student's time. Other mistakes include the misspelling of "miotic" (page 658), use of the puzzling phrase, "medullary adrenals" (page 648), and the confusion of summation with facilitation (page 653). On page 609 the word "reflex" is confused with "response," so that something becomes part of itself. These faults should be corrected in future editions. There is an index, and the bibliography, which has been expanded in this edition, provides a key to original references.

QUERIES AND MINOR NOTES

OBSTETRIC PRACTICE

TO THE EDITOR:—*Please answer the following questions: 1. Are the use of outlet forceps delivery and/or episiotomy considered part of normal obstetrics? The concept of "normal" is not to be confused with that of good obstetrics. 2. May a physician refuse to have the above procedures mentioned on the birth certificate? 3. What is considered a conservative percentage of cases in which outlet forceps delivery is used in an active obstetric practice? 4. Recent advances in anesthesia plus local infiltration will no doubt increase the number of outlet forceps deliveries. Is this desirable?*

M.D., Illinois.

ANSWER.—Obstetric practice is influenced by the facilities available and the experience of the physician. The patient who is delivered at home or by a general practitioner with limited obstetric experience should proceed through labor and deliver as naturally as possible. Even under these limitations, an episiotomy under local anesthesia may become necessary, because of maternal or fetal distress, to expedite the delivery. Many obstetricians who work in well-conducted maternity clinics routinely terminate labor by an episiotomy and an outlet forceps delivery. This can be considered normal and good obstetric practice. Since most primigravid and many multigravid women are delivered in this way, the incidence of this procedure may reach 50% or even 75%. There should be no objection to recording these procedures on the birth certificates, for such facts may provide valuable data for future study.

Statistics from our large maternity clinics reflect that the fetal hazard is no greater in outlet forceps delivery and episiotomy than it is in natural delivery. Major trauma to the baby and subsequent sequelae are more common in unrestrained natural deliveries in which a prolonged perineal stage may result in severe fetal anoxia. It is important to emphasize, however, that too many so-called outlet forceps deliveries are in reality difficult deliveries in which forceps are indicated and in which the fetal head is low in the pelvis but not on the perineum.

Recent advances in regional anesthesia have increased the incidence of outlet forceps delivery. This tendency is not undesirable in the well-equipped maternity clinics and in cases in which the deliveries are conducted by trained obstetricians.

COLOR OF SUMMER CLOTHING

TO THE EDITOR:—*I understand that the actinic or ultraviolet rays of the sun are injurious to the human system and that they do not pass through a dark surface. Therefore, would it not be wiser, in the summer, to wear black clothes and thus lessen the injurious effect of the actinic rays?*

M.D., New Jersey.

ANSWER.—It is not necessarily true that ultraviolet rays from the sun do not pass through a dark surface. An example of this is the Wood filter, which transmits ultraviolet rays and absorbs almost all of the visible rays that impinge on it. Ultraviolet rays in excessive doses may be injurious to the human subject; however, they have beneficial effects, one of which is the production of vitamin D. Exposure to ultraviolet light, either from the sun or from artificial sources, may produce an erythemal reaction that appears a few hours after the exposure and also may produce tanning of the skin.

In considering protection from excessive exposure to infrared (heat) and ultraviolet radiant energy, the property of materials to reflect, absorb, and transmit these rays must be taken into account. Both ultraviolet and infrared rays may be reflected by light-colored surfaces. This reflection will afford considerable protection from these two types of radiant energy; clothing that readily transmits either of these forms of radiant energy is not desirable. The transmission of ultraviolet rays by ordinary summer clothing is very poor, and so, as the result of reflection, absorption, and poor transmission, average clothing affords adequate protection from the ultraviolet rays of the sun. Although it would be possible to wear heavy, dark clothing that would absorb these rays and not transmit them, this would not be advisable in the summer, because such clothing would cause discomfort and even harmful effects from excessive heat. It would hinder evaporation of sweat from the surface of the body and thus impair the normal process of heat loss so necessary in summer.

FUNGUS INFECTIONS OF FEET

TO THE EDITOR:—*Our community is considering building a new high school. It has been suggested that copper sulfate be incorporated in the flooring material of the shower rooms as a prophylactic measure against fungus infections of the feet. I would appreciate any opinions or references on this subject.*

Nelson Newmark, M.D., Springfield, Mass.

ANSWER.—There are several schools of thought regarding the mechanism by which occasional epidemics of foot trouble (including fungus infections) occur in users of swimming pools and gymnasiums. There is, however, no evidence that antifungal agents incorporated in flooring will reduce the incidence of attacks. Regular foot bathing in pans filled with antifungal solutions, when given a controlled trial aboard ships of the U. S. Navy, did not reduce the incidence of dermatophytosis (athlete's foot) in men using showers. It is likely that the principal mechanism of most attacks of fungus infection of the feet is the flare-up of quiescent infections, foci that are carried by most adolescents and adults in and around toenails and in calluses. Reference should be made to an article by Sulzberger, Baer, and Hecht on the negligible role of exposure in attacks of common fungus infections of the feet and groins (*Arch. Dermat. & Syph.* **45**:670 [April] 1942).

The most logical means of preventing such flare-ups would appear to be simple measures for combating the accumulation of moisture and the prevention of maceration and other skin damage that favors the growth and spread of the fungi. These include the following measures: (1) after each shower or swim, careful, gentle drying of all areas where moisture can accumulate (e. g., between toes and buttocks); (2) after each drying, unfailing and liberal dusting of mild antifungal powders; (3) correction of conditions leading to intertriginous heating and maceration (orthopedic correction, placing wisps of lambs' wool between toes that are set too closely together, wearing sandals or aerated shoes, combating hyperhidrosis, and early, gentle, proper treatment of blisters, abrasions, and calluses. (For further information on prophylaxis see *Hygeia* **19**:522, 1941).

CAUSALGIA FOLLOWING COLLES' FRACTURE

TO THE EDITOR:—*What is the treatment of tenosynovitis with marked causalgia following Colles' fracture that occurred nine months ago? The tendons are still rigid and tense.*

R. C. Falconer, M.D., Berkeley, Calif.

ANSWER.—A most satisfactory treatment is simple physical therapy consisting of soap and water washing, for 10 to 15 minutes twice daily, of the entire hand and forearm, combined with gentle passive movements at the small joints of the hand to relieve the stiffness that so often develops. At times, sympathetic nerve block seems helpful, but it is wise to carry out simple physical therapy first to see what can be accomplished by that method.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

DUMPING SYNDROME FOLLOWING GASTRECTOMY

TO THE EDITOR:—*Ten years ago, a patient had a gastric resection because of a bleeding duodenal ulcer on the posterior wall involving the pancreas. A complete end-to-side anastomosis was done. Five weeks after the operation the "dumping" syndrome set in, characterized by a "reverse" postprandial dyspnea, i. e., there is a short inspiration and a forced expiration with the mouth tightly closed. Occasionally, a meal can be eaten without distress, but the distress seems to be increasing with time. The patient has had the usual surveys and medication but has not obtained much relief. I have not been able to find an adequate explanation for this or suitable therapy. If either is available, I should appreciate the information.* *M.D., California.*

ANSWER.—The phenomenon of a "reverse" postprandial dyspnea characterized by a short inspiration and a forced expiration with the mouth tightly closed is not usually associated with the "dumping" syndrome. It is possible that the phenomenon described may be due to a simple reflex mechanism resulting from distension of a small stomach, although the likelihood of a more complicated, emotionally conditioned disorder must be kept in mind. The syndrome of the "dumping" stomach is usually characterized by weakness, dizziness, flushing, warmth, perspiration, epigastric fullness, palpitation, and nausea (Ivy, A. C., and others: Peptic Ulcer, Philadelphia, The Blakiston Company, 1950). Moderate increase in the respiratory rate may also be seen, presumably owing to release of an epinephrine-like vasoconstriction. These symptoms may occur immediately or 10 to 15 minutes after a variable amount of food is eaten. They may not occur after every meal and are usually severest after the ingestion of sugar in various forms. The symptoms are generally attributed to distension or irritation of the jejunum or to a combination of the two. Frequently, the gastric remnant empties rapidly but no more rapidly than in patients who have no symptoms. Alvarez (*Gastroenterology* **13:**212, 1949) has stressed the fact that the syndrome is not dependent on the presence of a gastroenteric anastomosis or a gastric resection, as it may be seen in hypersensitive or overly reactive persons who have not had an operation on the stomach. In them, it appears to be due to the rapid outpouring of food through a patulous pylorus. It can also be reproduced rapidly by running food into a jejunal fistula too fast or running food into it that is too cold or too concentrated.

Machella (*Gastroenterology* **14:**237, 1950) reproduced the symptoms of the "dumping" syndrome by the inflation of a balloon in the jejunum. Wells and Welbourn (*Brit. M. J.* **1:**546, 1951) attribute "dumping" to the fact that the reservoir function of the stomach is lost after a subtotal gastrectomy. In the Billroth procedure, the gastric remnant opens into the duodenum, and dilution of food occurs there and probably protects the jejunum in this way. Wells and Welbourn reserve the term "dumping" for the efferent loop syndrome attributed to the rapid entry of a large bulk of food into the jejunum. More recently, Smith (*Lancet* **2:**745, 1951) found that the serum potassium level falls in such patients during a "dumping" attack. Electrocardiograms made during this period show changes characteristic of hypopotassemia. Smith concludes that this hypopotassemia is due to release of some epinephrine-like substance into the blood, abnormally rapid absorption of carbohydrate, rapid deposition of glycogen, and "binding" of potassium inside the glycogen storing cells. Groen and co-workers (*Nederl. tijdschr. geneesk.* **94:**2187, 1950) have shown, however, that a drop in potassium occurs following administration of glucose in normal persons and is not necessarily accompanied by any symptoms. Treatment should first involve the use of a bland, soft diet, with frequent feedings to prevent undue distension. Sugars and other hypertonic solutions should be avoided. Lying down after meals or even during the mealtime often is of value, since the gastric remnant does not empty so rapidly. Ingestion of fluids should be avoided at mealtime. Sedation with phenobarbital in small dosage prior to meals often is helpful, especially if given in conjunction with atropine or one of its newer derivatives.

AIR EMBOLISM FOLLOWING ARTIFICIAL PNEUMOTHORAX

TO THE EDITOR:—*A frail woman, about 30, with advanced tuberculosis had been receiving extrapleural pneumothorax refills on the right side for two years. On the last occasion I inserted the needle as usual in the second right interspace anteriorly. After a moment or two, the patient sat up, turned darkly cyanotic, lay back, and apparently died at once. I turned her immediately on her left side and lowered the head. Epinephrine was given intracardially, and artificial manual respiration was attempted. The pulse and heart beats were absent. I rushed the patient to the hospital for oxygen therapy, but she was pronounced dead on entry. The whole procedure probably took 10 minutes. I estimated having given her perhaps only 10 cc. of air. At autopsy, the right ventricle was found to have 300 cc. of air in it. What could have been done for this air embolism?* *M.D., California.*

ANSWER.—The case described is typical of air embolism. The cause is simple; it results from a communication of the bronchus with the pulmonary vein. When the needle makes this communication possible the air is sucked into the vein, especially at the cycle of respiration, when the pressure is less in the vein than it is in the bronchus. This accident is likely to happen when there is a poor pneumothorax or when adhesions are present. Sometimes the air may go directly into the pulmonary vein from the needle, but the large amount of air in the right ventricle was undoubtedly due to that coming in from the bronchus and passing through the bronchovenous fistula. After reaching the left ventricle, it is disseminated throughout the body and ends in either the coronary arteries or the centers of respiration in the brain, generally causing immediate death. When the air does not strike a vital center, varying degrees of weakness or shock may be present. This is the principal reason for the lowering of the head when pneumothorax is given. In case there should be such an accident the air would go to the extremities and not to the brain. The accident should never happen if the technique is good and the cases are properly selected. The only thing to do with a bad pneumothorax is to remove the needle quickly. There is nothing that can be done for this type of air embolism except to hope that it does not reach one of the vital centers. Administration of oxygen would not have helped in any way.

ANESTHESIA FOR CIRCUMCISION

TO THE EDITOR:—*One hears discouraging stories about gangrene resulting from the use of procaine on extremities. I use this drug for local anesthesia for circumcisions. Has procaine or procaine with epinephrine ever been blamed for gangrene of the penis? Has gangrene ever been observed with nerve blocks, such as block of the dorsal nerve of the penis?*

A. B. Mason, M.D., New York.

ANSWER:—It is considered safe to use procaine, with or without epinephrine, for local anesthesia for circumcision. A technique has been described by Lundy (Clinical Anesthesia, Philadelphia, W. B. Saunders Company, 1942, p. 121), which is quoted in part:

"If the block is carefully done the results are uniformly satisfactory. Although the patients on whom the method is used usually are adults, it may be used for operation on suitable children.

"The amount of solution injected should not be large enough to make the foreskin edematous. It is for this purpose that block is used rather than infiltration as there is not much doubt that it makes it possible to remove the exact amount of tissue that should be removed." The total amount of solution used seldom exceeds 40 cc.

"One per cent solution of procaine or metycaine, with epinephrine, is used and the injection is carried out by placing the solution subcutaneously and intradermally around the entire base of the penis or, if possible, a distance of 2 fingerbreadths from the foreskin. Injection of the skin near the base of the penis, on its dorsal aspect, especially in the midline, must be

carried out so that all of the skin and subcutaneous tissue is infiltrated. (Remember that the dorsal surface of the penis is continuous with the ventral surface of the trunk.) Any tissue that is missed at this point can result in failure to produce good anesthesia for the operation. Occasionally the injection seems to be satisfactory and yet anesthesia does not appear when the foreskin is tested. In such cases, intradermal injection should be made at the base of the penis, especially on the perineal aspect. The superficial injection will anesthetize the foreskin but, because the glans penis usually is sensitive if patients require circumcision, it is well that the glans penis also be anesthetized. This is easily effected by injecting 5 or 10 cc. of 1 per cent solution of procaine or metycaine with epinephrine, *against* the dorsum of the corpus cavernosum near the base of the penis. This injection should anesthetize the two dorsal nerves of the penis. The dorsal vein of the penis should be avoided. Obviously, also, it is necessary to avoid injection *into* the corpus cavernosum. The most convenient means of recognizing when the needle has just reached the outer surface of the corpus cavernosum is for the anesthetist to support the base of the penis with the tip of the middle finger of his left hand at a point opposite the point where the needle is to enter the skin. When the needle touches the corpus cavernosum the sensation of counterpressure is felt by the anesthetist. Moreover, since the surface of the corpus cavernosum is tender, it usually is evident to the patient when the needle has touched it.

"These injections give complete anesthesia of the organ so that any operation on it, including amputation, can be carried out. For the adult patient, the method described seems to be the safest form of anesthesia for circumcision and I prefer it to any method of general anesthesia.

"For nervous patients, preliminary medication is advisable. For a placid person, however, injection and operation can be carried out without preliminary medication; this may be advantageous if a patient is ambulatory."

When procaine is used for blocking a digit, it is felt advisable not to use epinephrine with the procaine, since occasionally circulation in the digit is not very good and may be interfered with by the epinephrine. It is possible for gangrene to occur in such a digit.

TIME OF APPEARANCE OF OSSIFICATION CENTERS

To the Editor:—*A boy, 5 years old, weighs 63 lb. (28.6 kg.), is intelligent and alert. Except for being overweight, he had been in good health until he had a Streptococcus infection of the throat and a slight murmur was found. On fluoroscopic examination, I noticed that he had only three calcified carpal bones instead of five, as is normal for his age. Roentgenographic examination revealed a diminution in the number of osseous centers in the wrists as well as considerable underdevelopment of the osseous center for the patella. The retardation of ossification is about two years. Studies were made of iodine uptake, which was normal. The protein bound iodine was also normal. I have been under the impression that delayed ossification in children is due to hypothyroidism. Hypothyroidism could not be substantiated in this case by laboratory tests. What tests would establish the cause of the glandular deficiency responsible?*

L. M. Shapiro, M.D., Kansas City, Mo.

Answer.—The time of appearance of ossification centers may vary in the normal child. This time of appearance does not necessarily follow the chronological age. Of more importance than the number of ossification centers present at a given age is the progress of ossification in a given period. If, for example, there is a six months' progress of ossification in this given period, the chances are that there is only an apparent and not a true retardation of ossification. Most authorities now feel that ossification cannot be judged from the roentgenological observation of the centers alone. One must also take into account the roentgenological appearance of the bones themselves. It is suggested that roentgenograms of the wrist and long bones of the child in question be repeated at 6 to 12 month intervals and that these roentgenograms then be compared with the originals.

AMPHETAMINE AND BLOOD SUGAR

To the Editor:—*I have been under the impression that the use of amphetamine (benzedrine®) sulfate or allied preparations was undesirable in diabetic patients, because they raise the blood sugar level. Is there any basis in fact for this idea?*

J. S. Milton, M.D., Minneapolis.

Answer.—The effect of amphetamine (benzedrine®) sulfate and dextroamphetamine (dexedrine®) sulfate on the blood sugar has been studied in a number of investigations, usually as incidental observations. It has been the consensus of reports in the American literature that these drugs have little or no effect on the blood sugar level. Dolger and Osserman (Queries and Minor Notes, *J. A. M. A.* **138:**468 [Oct. 9] 1948; *Ann. Int. Med.* **34:**72 [Jan.] 1951) found no instance of aggravation of diabetes by dextroamphetamine in a series of 55 obese diabetic patients. In studies on normal fasting men, Dill, Johnson, and Daly (*Am. J. M. Sc.* **198:**702 [Nov.] 1939) found that "amphetamine did not modify carbohydrate utilization or the concentrations of sugar, lactate or acetone bodies in the blood." Myerson, Loman, and Dameshek (*Am. J. M. Sc.* **192:**560 [Oct.] 1936), Davidoff and Reifenstein (*J. A. M. A.* **108:**1770 [May 22] 1937), and Donley (*Ohio State M. J.* **33:**1229 [Nov.] 1937) noted no effect on the blood sugar following the administration of amphetamine. Sutherland and Cori (*J. Biol. Chem.* **188:**531 [Feb.] 1951) found that amphetamine exerted no glycogenolytic effect as measured by the glucose output of rabbit liver slices.

DEVELOPMENT OF MYXEDEMA

To the Editor:—*In a woman, 48 years of age, in previous good health, signs and symptoms of myxedema developed. At no time prior to this episode had she any symptoms of hypothyroidism. Can it be assumed that the condition is an acute process of recent onset? If this assumption is correct, how much time must elapse from the time the thyroid begins to underfunction until clinical symptoms are manifest to render a diagnosis possible?*

Benjamin Chernoff, M.D., Philadelphia.

Answer.—The onset of myxedema, when it occurs spontaneously in the adult, is usually insidious, and, as a general rule, it is caused by variants of Hashimoto type of thyroiditis (struma lymphomatosa). Aside from ablation of the thyroid, its destruction with radioactive iodine or its inhibition with antithyroid drugs, there are few if any processes that cause sudden cessation of thyroid function. When the thyroid does suddenly cease to function, there is a lag of from one to three months before clinical symptoms of myxedema develop. It is likely that in the patient in question myxedema developed insidiously over a period of months or years and that it was not until the process went from hypothyroidism to true myxedema that the symptoms attained clinical level.

DRUG ADDICTION

To the Editor:—*I have read that drug addicts have been successfully treated with corticotropin. Can you tell me where I can get literature on the subject?*

O. O. Lyons, Vancouver, B. C., Canada.

Answer.—Experiments conducted under carefully controlled conditions at the National Institute of Mental Health Addiction Research Center, United States Public Health Service Hospital, Lexington, Ky., showed that corticotropin and cortisone did not prevent or lessen the intensity of the acute symptoms of abstinence from morphine. In fact, withdrawal symptoms appeared earlier and were more intense in patients who received corticotropin than they were in control patients to whom corticotropin was not given during withdrawal. Details of these experiments have not been formally published, but they are discussed in "Proceedings of the ACTH Conference" held by Armour Laboratories, Chicago, Ill., April 25-26, 1952 (vol. 2, pp. 480-503). These volumes are mimeographed, and copies of the pertinent parts of the conference might possibly be obtained by writing to the Armour Laboratories.

PERSISTENT POSITIVE CEPHALIN-CHOLESTEROL FLOCCULATION

TO THE EDITOR:—*I have been unable to find the significance of a persistent 4+ cephalin flocculation test result over a four year period in a woman. There has never been evidence of liver disease, and results of other liver function tests have been normal. The only disease present is a chronic atrophic pharyngitis. The sedimentation rate is always slightly elevated. Please give me your opinion.* *M.D., New Jersey.*

ANSWER.—A positive cephalin-cholesterol flocculation test result occurs, according to Moore and associates (*J. Clin. Investigation* **24**:292 [May] 1945), on the basis of one or more of the following conditions: (*a*) an increase in gamma globulin; (*b*) a diminution in serum albumin; and/or (*c*) a diminution in the flocculation-inhibiting properties of the albumin fraction. As may be deduced from their observations, the flocculation test is not a specific indicator of liver damage or disease. It may be positive in a wide variety of conditions, including the so-called collagen diseases, myeloma, sarcoid, rheumatoid arthritis, or other conditions in which disturbances in the normal albumin-globulin ratio is present. There also seem to be "false positives," which cannot be easily explained. It would be well in this case to repeat the cephalin-cholesterol flocculation test in another laboratory, to check the serum protein fractions, to perform a thymol turbidity test, and to exclude, by appropriate studies, some of the conditions mentioned above.

UNDERNUTRITION TREATMENT OF DIABETES MELLITUS

TO THE EDITOR:—*About 35 years ago a cure for diabetes, called the "Allen starvation treatment," was brought out and used with considerable success. I have not heard of its use in recent years. If the method has been dropped as a cure, what is the reason? If it is still used, please describe the present technique.*

W. W. Jones, M.D., Jordan Valley, Ore.

ANSWER.—Dr. Frederick M. Allen is responsible for the development and wide usefulness of the method of treating diabetes mellitus by undernutrition. It is a sound and practical method, which operates by correction of obesity, lowering of metabolism, and improvement of tolerance for sugar under those conditions. Allen has described controlled animal experiments that prove the effectiveness of the method. Naunyn and others before him called attention to its clinical application, but Allen has justified it by meticulous work and is currently given credit for devising it. The field of usefulness of undernutrition in treatment of diabetes is no longer as broad as it was. The discovery and common use of insulin has narrowed its practical application. But in the mild and obese diabetic it has fundamental value, which has been neglected since insulin has become available. Too few physicians know and have proper respect for it.

PERSPIRATION STAINS ON METAL

TO THE EDITOR:—*An industrial plant has 20 skilled precision workers engaged in the manufacture of small metal objects or precision parts used in aircraft. These parts are composed of various materials. Four of the workers, after handling these parts, have left stains from perspiration from their hands, which has caused corrosion of the metals. Several buyers of these parts have shipped them back because of these defects. Can you advise any treatment that would alleviate the condition of these workers or any protective measures that would be applicable?*

Neal J. McCann, M.D., Torrance, Calif.

ANSWER.—This condition relates to the pH state of the skin, which is dependent on perspiration, or, instead, may be influenced by residual soaps due to faulty rinsing. A few persons have skin surfaces with a pH as acid as 4. The palm surfaces of both hands and fingers are usually more acid than other portions of the body. The skin's acid state is much depressed during winter, so that the difficulty described may disappear spontaneously during the cold months. The pH level of skin surfaces may be readily determined by the application of a drop of methyl orange solution or more precisely by the application of a universal indicator solution. The following steps are recommended: 1. Determine if cold weather has, for the season, eliminated the difficulty. 2. Make sure that adequate rinsing follows use of soap. 3. Institute hand washing with any cake soap at two hour intervals, to be followed by adequate rinsing and drying. 4. If the preceding fails, then provide for hand application only any of the many commercially available antiperspirants (not deodorants). These may be procured in nongreasy form as powder or liquid. Antiperspirants need not be applied during working hours but, if desirable, only at home. The action of antiperspirants may not be physiological but, if judiciously applied, their use is condonable. The control of this condition is more difficult in women than in men. If all of these measures fail, there are available commercially, anticorrosion solvents, but their application to the finished small metal part adds to the cost of the product.

INDUCTION OF LABOR IN RH-NEGATIVE MOTHER

TO THE EDITOR:—*What is the consensus regarding the induction of labor at eight months (or possibly doing a cesarean section) in the case of an Rh-negative mother, during a third pregnancy, when the Rh antibody titrations (including Coomb's test) are strongly positive? The patient's second baby was erythroblastotic and required an exchange transfusion (with excellent results). Would tubal ligation be justified at the end of the present pregnancy, assuming that there are no other contraindications to pregnancy?*

M.D., Connecticut.

ANSWER.—Early enthusiasm for premature delivery in such cases has now diminished, because the hazard of prematurity is superimposed on the already dismal probability of erythroblastosis. Accordingly, premature delivery in such cases is considered to be undesirable and to offer little. Tubal ligation is not justified. This is an entirely final procedure and there is always possibility that a means of desensitizing such patients will be developed.

DIPHENYLHYDANTOIN MEDICATION AND HIRSUTISM

TO THE EDITOR:—*Hirsutism in young women may be an annoying side-effect of diphenylhydantoin (dilantin®) medication. What causes the hirsutism? What counter measures, if any, can be suggested?* *William G. Lennox, M.D., Boston.*

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—The problem has concerned workers for some time, yet there is still no explanation to account for it, and, in the absence of an explanation, counter measures cannot be suggested.

ANSWER.—It has been known for some time that diphenylhydantoin will cause an increased growth of hair in young women, and this growth is especially noted on the extremities more than on the face. There is no known cause other than the possible effect the drug may have on the adrenal gland.

VENEREAL DISEASE

TO THE EDITOR:—*Some time ago, I took exception to a statement made by a speaker that one in five of our population contracts venereal disease. Please give me some figures on this subject.* *F. J. Savage, M.D., St. Paul.*

ANSWER.—In the "VD Fact Sheet," published by the United States Public Health Service in December, 1951, the estimated annual minimum incidence of syphilis for the civilian and military population of the United States in fiscal year 1951 was 74,000 cases, and 270,469 cases of gonorrhea were reported

during the same year. Because many cases of gonorrhea are not reported to health departments and because of the high percentage of repeated infections in this disease, it is not possible to combine figures for gonorrhea and syphilis and estimate what proportion of our population contract a venereal disease.

ALOPECIA AND FLUORESCENT LIGHTING

To the Editor:—*A woman, 32 years of age, has worked at a switchboard for years. For the past three months, she has been exposed to a fluorescent light, which has been above her head about two feet. At the end of three months, several large areas of alopecia developed, which responded to the usual treatments. During this period it was also noted that she had a secondary anemia. The dermatologist stated that the alopecia was only a seborrhea sicca. It is my opinion that the alopecia developed as a result of the constant light over the patient's head. Is there any basis for this assumption, and is there any literature on the subject available?*

F. D. Napolitani, M.D., New York.

Answer.—There is no basis for believing that exposure to fluorescent light will produce alopecia. On the contrary, fluorescent lamps emit a slight amount of ultraviolet rays, which, if anything, should stimulate the scalp.

ACCIDENTS DUE TO ALLERGY

To the Editor:—*Among the numerous causes of accidents "at the wheel," has allergy ever been cited?*

Walter A. Landry, M.D., Chester, Pa.

Answer.—Allergic manifestations can be responsible for accidents "at the wheel." The sneezing of hay fever is perhaps the most important, since in a severe spell the closing of the eyes may easily result in an accident. It is for such reasons that the air lines reject persons with hay fever as pilots. Other manifestations that may be responsible for accidents are severe asthma and acute anaphylactic reactions, such as follows the injection of an antigen. Although the medical literature may not contain such case reports, many allergists of experience are acquainted with accidents due to allergy.

SIMULTANEOUS ADMINISTRATION

To the Editor:—*Is there any objection to the simultaneous administration, through the same tube, of 5% glucose in sodium chloride solution and citrated whole blood? Is there any objection to the simultaneous administration, through the same tube, of citrated whole blood and isotonic sodium chloride solution?* *John P. Gifford, M.D., Vero Beach, Fla.*

Answer.—There is no objection to the simultaneous administration of 5% glucose in sodium chloride solution and citrated blood or of isotonic sodium chloride solution with citrated blood. This is often done in many hospitals with no bad side-effects. The important point to remember is that all solutions must be isotonic and pyrogen-free.

ROTATION OF THE OCCIPUT

To the Editor:—*Please describe in detail the one blade rotation of the occiput from a persistent occiput posterior position to an anterior position.* *M.D., Rhode Island.*

Answer.—One of the important requisites for any acceptable technique for rotation is that one be able to obtain good grasp on and full control of the head. Accordingly, there is no acceptable technique for rotation of the head from posterior to anterior using only one blade of the forceps. Occasionally, it is possible to cause rotation by the use of one or two fingers against the parietal bone or lamboidal suture, but even in such a case the use of one blade of the forceps is not permissible. The control of a single blade is extremely difficult, and there is great likelihood of injury to the mother.

ALLERGY TO INSULIN

To the Editor:—*Queries regarding allergy to insulin appeared in* The Journal *Jan. 31, 1953, page 432, and Feb. 14, 1953, page 600. Rapid desensitization to crystalline insulin was recommended in both instances, although it had failed previously in one of the cases. No mention was made of two further procedures that have proved successful. Local cutaneous reactions that follow insulin injection can be prevented or minimized by the addition of 0.1 cc. of chlorprophenpyridamine (Chlor-trimeton) maleate solution (100 mg. per cubic centimeter) to the syringe containing the usual dose of any form of insulin. The entire mixture is then injected in the ordinary manner. In the presence of generalized allergic reactions to insulin, denatured insulin may be resorted to, as described in the article "Denatured Insulin: A Simplified, Rapid Means of Treatment of Allergy to Insulin Complicating Diabetic Ketosis," which appeared in the* New York State Journal of Medicine *(**52:** 2023 [Aug. 15] 1952). The immersion of a vial of crystalline zinc insulin in boiling water for 30 minutes reduces its antigenicity without appreciably reducing its physiological activity. After the boiled insulin has been administered one, two, or three times daily, as needed, for about two weeks, ordinary commercial protamine or isophane (NPH) insulin usually may be substituted, without inducing further allergic response.*

Henry Dolger, M.D.
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INJECTIONS INTO BUTTOCK

To the Editor:—*The answer to the query in the Feb. 14* Journal *(page 597) about "Injections Into Buttock" is misleading unless qualified. The size of a needle for intramuscular injection should be, like a dose of medicine, sufficient to do the job. In some buttocks one may find a fatty layer 2½ in. thick; if an "intramuscular" injection is attempted with a 1½ in. needle, a painful nodule will often result. In such a case, a 3 in. needle would be proper. Also, in making intramuscular injections, less pain is produced if the needle is inserted in a smooth single stroke. A 2 in. 22 gage stainless steel needle will often buckle when this is attempted. Of course, under operating room conditions, one may support the needle at its midpoint with the fingers, but this results in a rather clumsy insertion, and the overall result is usually not better than could be obtained by the use of a 20 gage needle with quicker and smoother insertion. The skin over the upper outer quadrant is often as tough as sole leather. Good intramuscular injection technique requires the use of one's brains and the variation of details according to the patient and the material being injected.*

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GALLBLADDER DYES AND BLOOD CHEMISTRY

To the Editor:—*In Queries and Minor Notes in* The Journal, *Dec. 27, 1952, page 1736, in response to a query on gallbladder dyes and blood chemistry, it was stated that "there is no reason to suspect that any substance used in cholecystography will have an effect on the ordinary blood chemistry tests or on the basal metabolic rate." The following is quoted from James H. Means article on "Comparison of Tests of Thyroid Function"* (Bull. New York Acad. Med. **26:***583 [Sept.] 1950): "There is one important artefact that may intrude in the PBI (protein-bound iodine) determination. The gallbladder dyes containing iodine hook into serum proteins and remain in the blood stream for months. They would be determined as PBI, and may cause an elevation of PBI which is not due to thyroxine. Indeed, if any patient has had cholecystography within a year, his PBI may not accurately reflect his blood level of thyroid hormone."*

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